Wastewater analysis and drugs — a European multi-city study

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Introduction

Analysing communal wastewaters for drugs and their metabolic products in order to estimate their consumption in the community is a developing field, involving scientists working in different research areas, including analytical chemistry, physiology and biochemistry, sewage engineering, spatial epidemiology and statistics, and conventional drug epidemiology. This page presents the findings from studies since 2011. Data from all studies may be explored through an interactive tool, and a detailed an analayis of the findings of the most recent study in 2020 is presented.

A PDF version of a selection of the information on this page is available in our Publications database (/publications/pods/waste-water-analysis_en). See our wastewater analysis and drugs hub page (/topics/wastewater_en) for more information and resources on this topic.

Data explorer

In this section you can explore the data from the most recent study in 2020, as well as from previous studies. Each study reveals a picture of distinct geographical and temporal patterns of drug use across European cities. Clicking on a symbol in the graph or the map will show more detailled information for a given water treatment plant. You can also select a site from the dropdown menu.

Target drug:

cocaine* cannabis* amphetamine methamphetamine MDMA

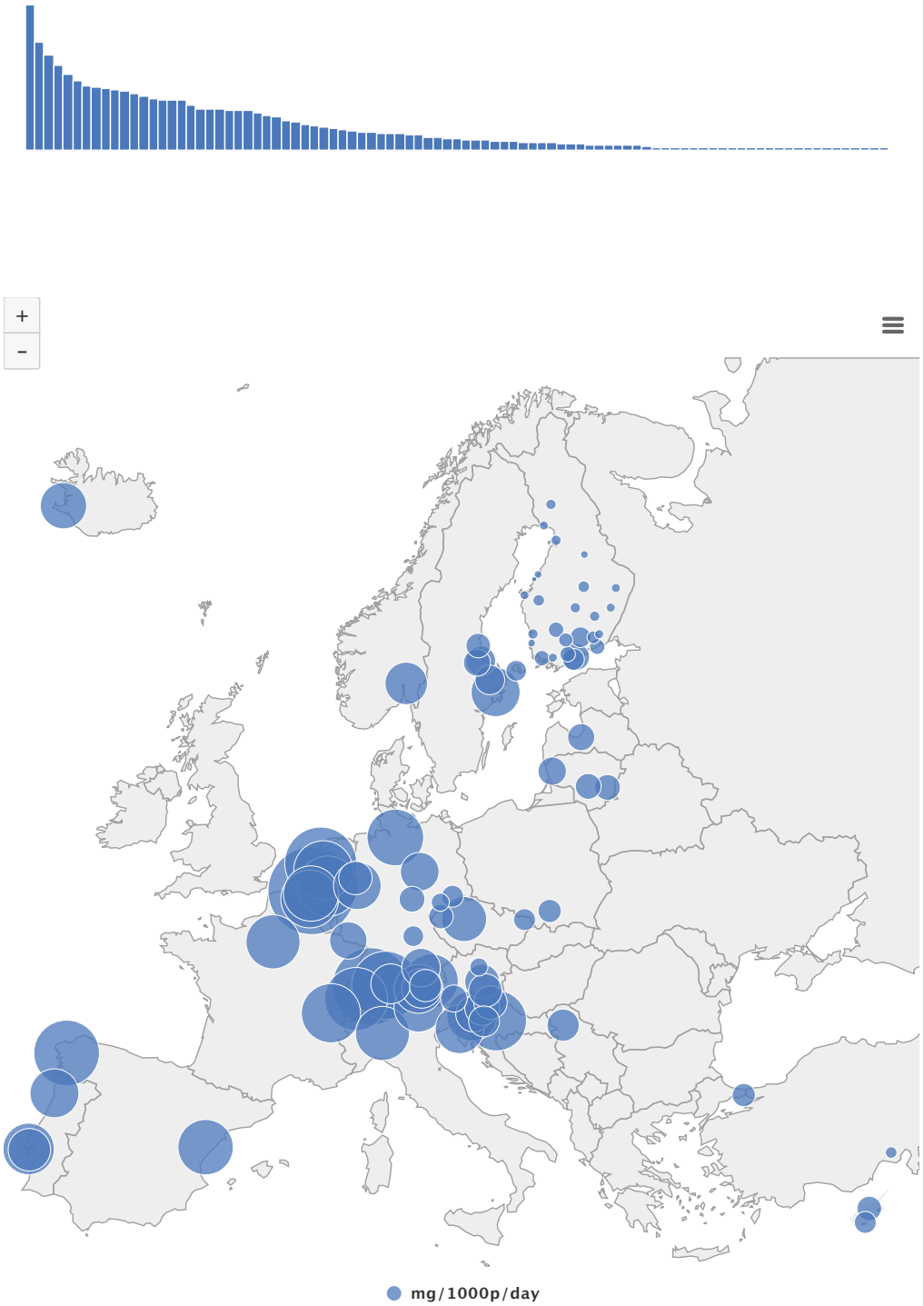
Mean:

Daily Weekday Weekend

Study year:

2020

Select a site



* **cocaine:** through its metabolite benzoylecgonine (BE) and **cannabis** through its metabolite THC-COOH.

Notes

Please see the notes in the Source data section which include general notes, substance specific notes, as well as city-specific remarks.

Analysis: results from a European multi-city study

The findings of the largest European project to date in the emerging science of wastewater analysis are taken up in this section. The project analysed wastewater in around 80 European cities and towns (hereinafter referred to as 'cities') to explore the drug-taking habits of those who live in them. The results provide a valuable snapshot of the drug flow through the cities involved, revealing marked geographical variations.

Wastewater analysis is a rapidly developing scientific discipline with the potential for monitoring real-time data on geographical and temporal trends in illicit drug use. Originally used in the 1990s to monitor the environmental impact of liquid household waste, the method has since been used to estimate illicit drug consumption in different cities (Daughton, 2001; van Nuijs et al., 2011; Zuccato et al., 2008). It involves sampling a source of wastewater, such as a sewage influent to a wastewater treatment plant. This allows scientists to estimate the quantity of drugs consumed by a community by measuring the levels of illicit drugs and their metabolites excreted in urine (Zuccato et al., 2008).

Wastewater testing in European cities

In 2010, a Europe-wide network (Sewage analysis CORe group — Europe (SCORE)) was established with the aim of standardising the approaches used for wastewater analysis and coordinating international studies through the establishment of a common protocol of action ( ). The first activity of the SCORE group was a Europe-wide investigation, performed in 2011 in 19 European cities, which allowed the first ever wastewater study of regional differences in illicit drug use in Europe (Thomas et al., 2012). That study also included the first intercalibration exercise for the evaluation of the quality of the analytical data and allowed a comprehensive characterisation of the major uncertainties of the approach (Castiglioni et al., 2014). Following the success of this initial study, comparable studies were undertaken over the following years, covering 82 cities and 18 countries in the European Union in 2020. A standard protocol and a common quality control exercise were used in all locations, which made it possible to directly compare illicit drug loads in Europe over a one-week period during ten consecutive years (van Nuijs et al., 2018). Because of the impact of the COVID-19 pandemic, for the 2020 wastewater monitoring campaign, raw 24-hour composite samples were collected during a single week between March and May for most cities, rather than only during March, as is usually the case. These samples were analysed for the urinary biomarkers (i.e. measurable characteristics) of the parent drug

(i.e. primary substance) for amphetamine, methamphetamine and MDMA. In addition, the samples were analysed for the main urinary metabolites (i.e. substances produced when the body breaks drugs down) of cocaine and cannabis, which are benzoylecgonine (BE) and THC-COOH (11-nor-9-carboxy-delta9-tetrahydrocannabinol).

The specific metabolite of heroin, 6-monoacetylmorphine, was found to be unstable in wastewater. Consequently, the only alternative is to use morphine, although it is not a specific biomarker and can also be excreted as a result of therapeutic use. This underlines the importance of collecting the most accurate figure for morphine use from prescription and/or sales reports.

Patterns of illicit drug use: geographical and temporal variation

2020 key findings

The project findings revealed distinct geographical and temporal patterns of drug use across European cities (see Interactive: explore the data from the study).

The annual SCORE wastewater sampling presented here, from 82 cities, showed that, overall, the loads of the different stimulant drugs detected in wastewater in 2020 varied considerably across study locations.

The BE loads observed in wastewater indicate that cocaine use remains highest in western and southern European cities, in particular in cities in Belgium, the Netherlands and Spain. Very low levels were found in the majority of the eastern European cities, with the most recent data showing some signs of increase.

The loads of amphetamine detected in wastewater varied considerably across study locations, with the highest levels being reported in cities in the north and east of Europe, as in previous years. Amphetamine was found at much lower levels in cities in the south of Europe.

In contrast, methamphetamine use, generally low and historically concentrated in Czechia and Slovakia, was also present in Cyprus, the east of Germany, Spain and northern Europe. The observed methamphetamine loads in the other locations were very low to negligible.

The highest mass loads of MDMA were found in the wastewater in cities in Belgium, Germany, the Netherlands and Slovenia.

The highest mass loads of the cannabis metabolite (THC-COOH) were found in wastewater in cities in Croatia, France and the Netherlands.

Fourteen EU countries participating in the 2020 monitoring campaign included two or more study locations (Austria, Belgium, Cyprus, Czechia, Germany, Finland, Greece, Italy, Lithuania, Netherlands, Portugal, Spain, Slovenia, Sweden). The study highlighted differences between these cities within the same country, which may be explained in part by the different

social and demographic characteristics of the cities (universities, nightlife areas and age distribution of the population), Some of these differences were related to the pandemic.. In the large majority of countries with multiple study locations, BE, methamphetamine and MDMA loads were higher in large cities compared to smaller locations. No such differences could be detected for amphetamine and cannabis (THC-COOH).

In addition to geographical patterns, wastewater analysis can detect fluctuations in weekly patterns of illicit drug use. More than three-quarters of cities show higher loads of BE and MDMA in wastewater during the weekend (Friday to Monday) than during weekdays, although much of the night-time economy was closed in Europe in 2020. In contrast, amphetamine, cannabis (THC-COOH) and methamphetamine use was found to be distributed more evenly over the whole week.

Thirty-three cities have participated in at least five of the annual wastewater monitoring campaigns since 2011. This allows for time trend analysis of drug consumption based on wastewater testing. Any comparison with previous years and between cities should take into consideration the fact that wastewater samples in 2020 may have been collected when local lockdowns were in place, which might have impacted on both drug availability and drug-using habits.

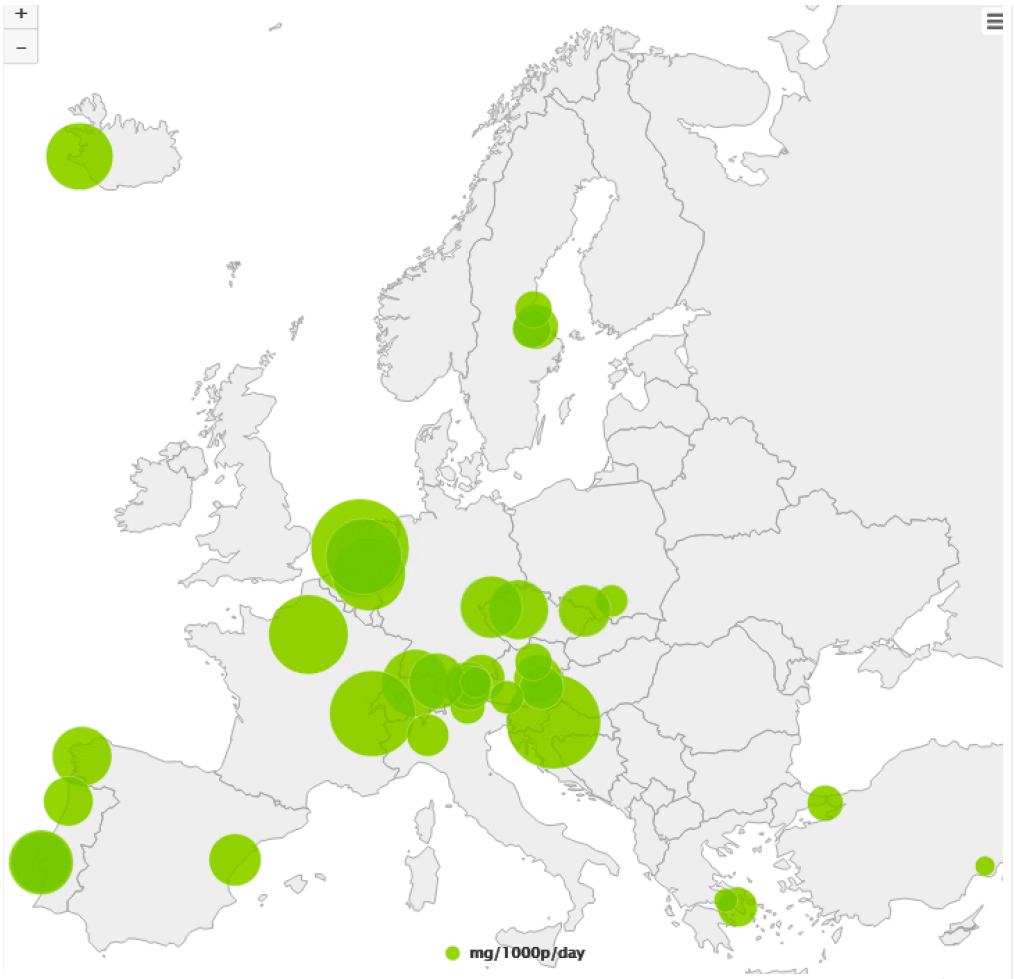
Cannabis

Cannabis is Europe's most commonly used illicit drug, with an estimated 22.2 million last year users. Cannabis use appeared to have been less affected during the pandemic lockdown periods, although differences between and within countries existed. Data from the European Web Survey on Drugs: COVID-19 (EWSD-COVID) also indicated that, among respondents, cannabis use patterns remained relatively stable during the first lockdown period, with more than two fifths (42 %) of the cannabis users who participated in the survey reporting no change in their use of the drug compared with the pre-confinement period (EMCDDA, 2020).

In wastewater, cannabis use is estimated by measuring its main metabolite, THC-COOH, which is the only suitable biomarker found so far. Although it is excreted in a low percentage and more research is still needed (Causanilles et al., 2017a), it is commonly used to report on cannabis use in the literature (Zucatto et al., 2016, Biljsma et al., 2020).

The THC-COOH loads observed in wastewater indicate that cannabis use was highest in western and southern European cities, in particular in cities in Croatia, France, Spain, the Netherlands and Portugal. Findings from wastewater analyses do not show large changes during 2020 when compared with 2019 data.

Figure 1: relative geographical distribution of cannabis metabolite as detected in European cities, 2020 (daily mean)

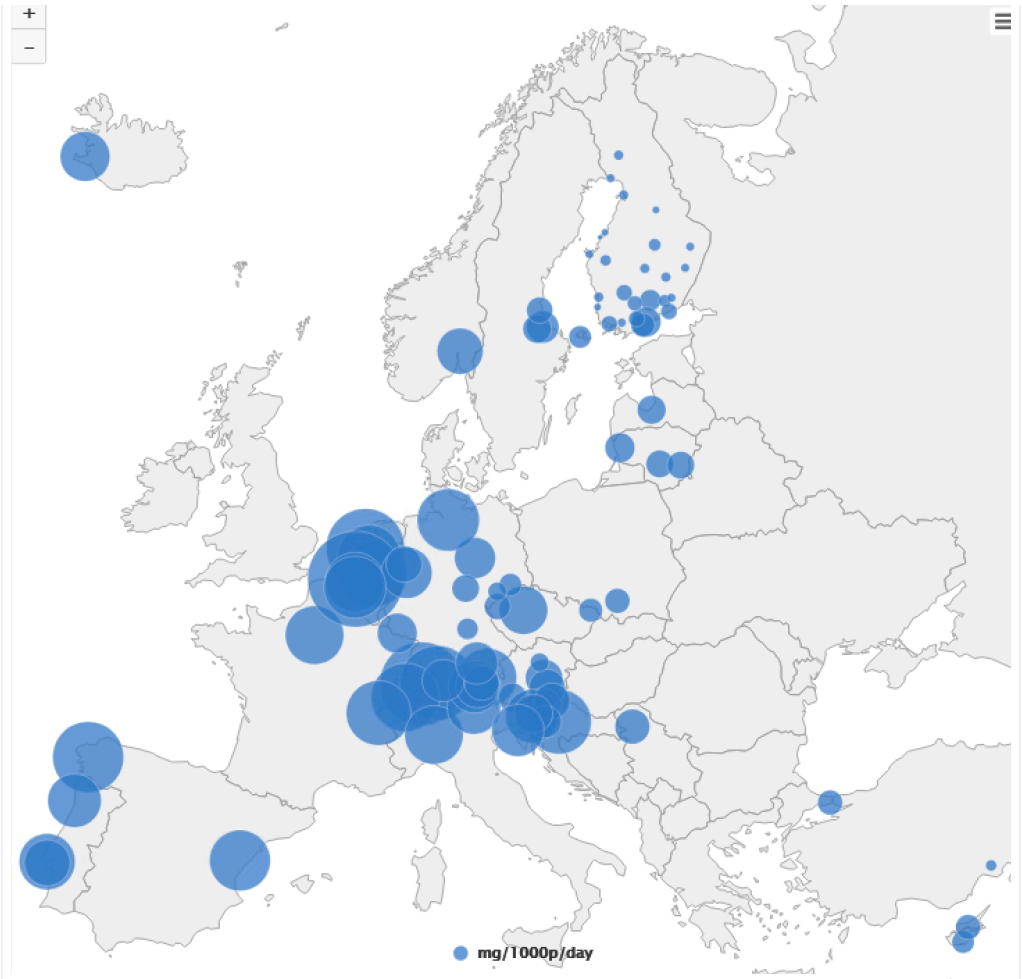


To examine the data, use the data explorer, also available on this page. See the source data.

Cocaine

The BE loads observed in wastewater indicate that cocaine use remains highest in western and southern European cities, in particular in cities in Belgium, the Netherlands and Spain. Very low levels were found in the majority of the eastern European cities, but the most recent data show signs of increase.

Figure 2: relative geographical distribution of cocaine metabolite as detected in European cities, 2020 (daily mean)



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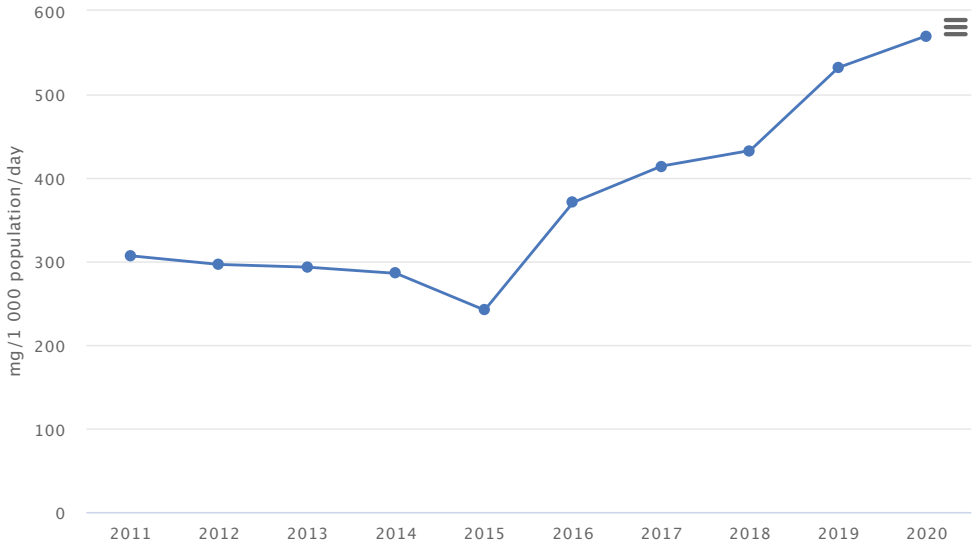
A relatively stable picture of cocaine use was observed between 2011 and 2015 in most cities. In 2016, there were initial signs that this pattern was changing, with increases observed in the majority of cities each year since then. In 2020, trends diverged in the participating cities, with further increases in use in 19 of the 49 cities with data for 2020 and 2019, and 16 cities reporting a decrease. An overall increase is seen for all the 10 cities with data for both 2011 and 2020.

Figure 3: Aggregated trends in cocaine residues in 8 EU cities, 2011 to 2020



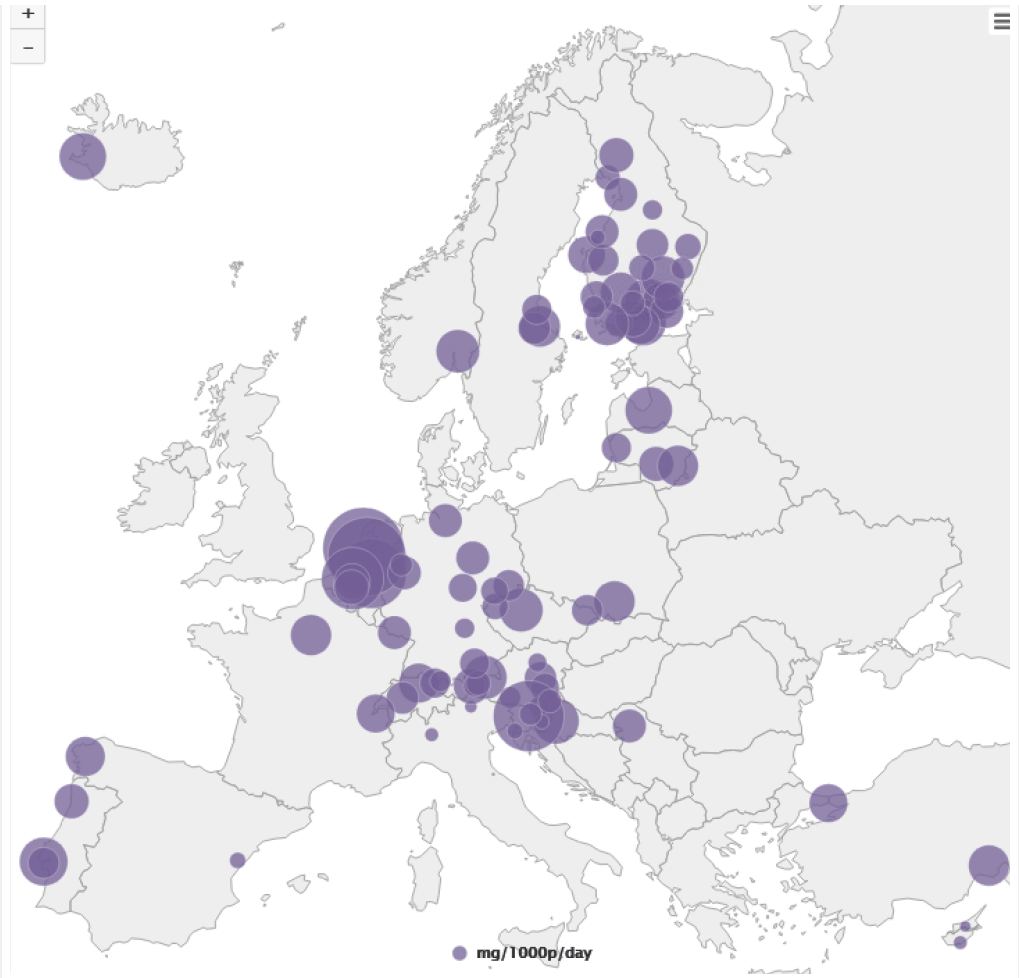
NB: Trends in mean daily amounts of benzoylecgonine in milligrams per 1 000 head of population in Antwerp Zuid (Belgium) Zagreb (Croatia), Paris Seine Centre (France), Milan (Italy), Eindhoven and Utrecht (Netherlands), Castellon and Santiago (Spain). These 8 cities were selected owing to the availability of annual data from 2011 to 2020.

In the majority of countries with multiple study locations, BE (cocaine) loads were higher in large cities compared to smaller locations. In addition to geographical patterns, wastewater analysis can detect fluctuations in weekly patterns of illicit drug use. More than three-quarters of cities show higher loads of BE in wastewater during the weekend (Friday to Monday) than during weekdays, which may reflect a pattern of more recreational use.

MDMA

The highest mass loads of MDMA were found in the wastewater in cities in Belgium, Germany, the Netherlands and Slovenia.

Figure 4: relative geographical distribution of MDMA residues as detected in European cities, 2020 (daily mean)



To examine the data, use the data explorer, also available on this page. See the source data.

Until recently, general population surveys in many countries showed that MDMA prevalence was declining from peak levels attained in the early to mid-2000s. In recent years, however, the picture has remained mixed with no clear trends. Where prevalence is high, this may reflect MDMA no longer being a niche or subcultural drug limited to dance clubs and parties, but now being used by a broader range of young people in mainstream nightlife settings, including bars and house parties.

Looking at longer-term trends in wastewater analysis, in 7 out of the 9 cities with data for both 2011 and 2020 MDMA loads were higher in 2020 than in 2011. Sharp increases were observed in some cities, including Amsterdam, Eindhoven and Antwerp. In most cases the loads increased between 2011-16, and have fluctuated after this. In 2020, possibly due to the fact that in the majority of countries nightlife was largely closed for long periods, almost half of the cities (24 of 49) reported a decrease with 18 reporting an increase.

In the large majority of countries, MDMA loads were higher in large cities compared to smaller locations. Also, more than three-quarters of cities showed higher loads of MDMA in wastewater during the weekend (Friday to

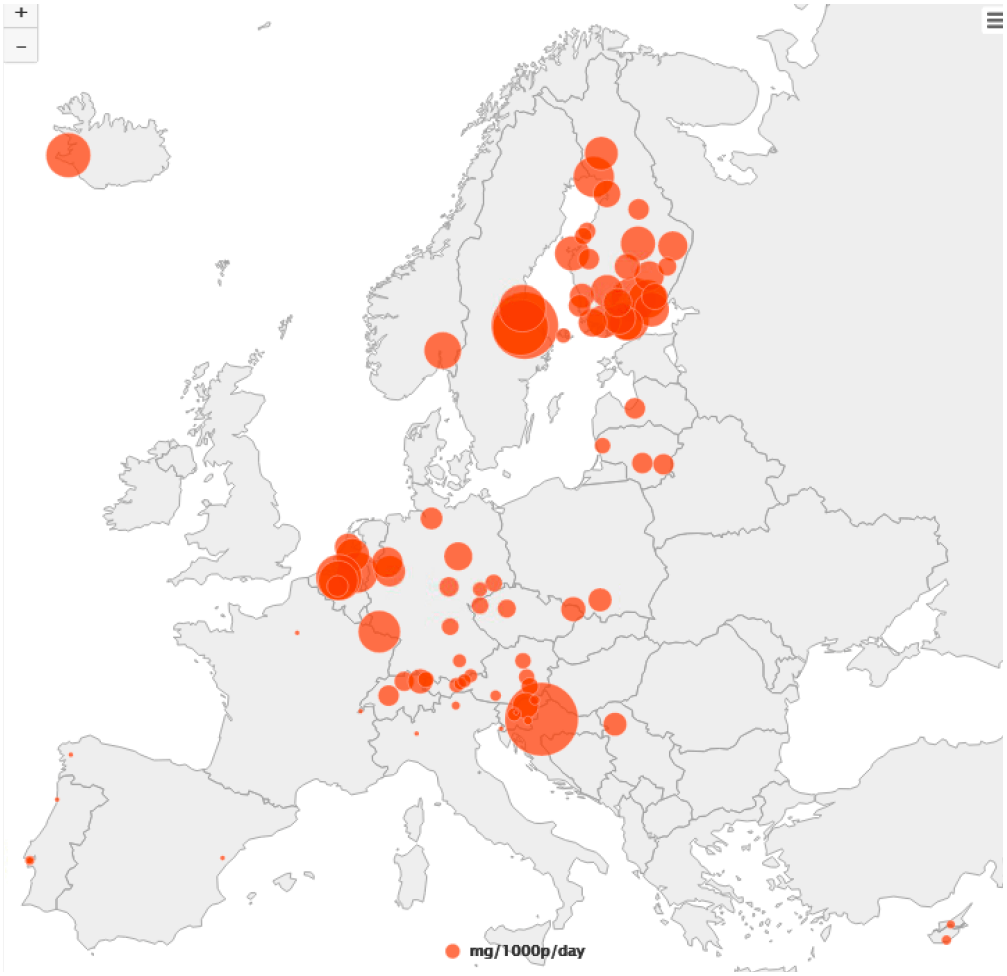
Monday) than during weekdays, reflecting the predominantly recreational use of ecstasy, although night-time economy was mostly closed.

Amphetamine and methamphetamine

Amphetamine and methamphetamine, two closely related stimulants, are both consumed in Europe, although amphetamine is much more commonly used. Methamphetamine consumption has historically been restricted to Czechia and, more recently, Slovakia, although recent years have seen increases in use in other countries.

The loads of amphetamine detected in wastewater varied considerably across study locations, with the highest levels reported in cities in the north and east of Europe. Amphetamine was found at much lower levels in cities in the south of Europe.

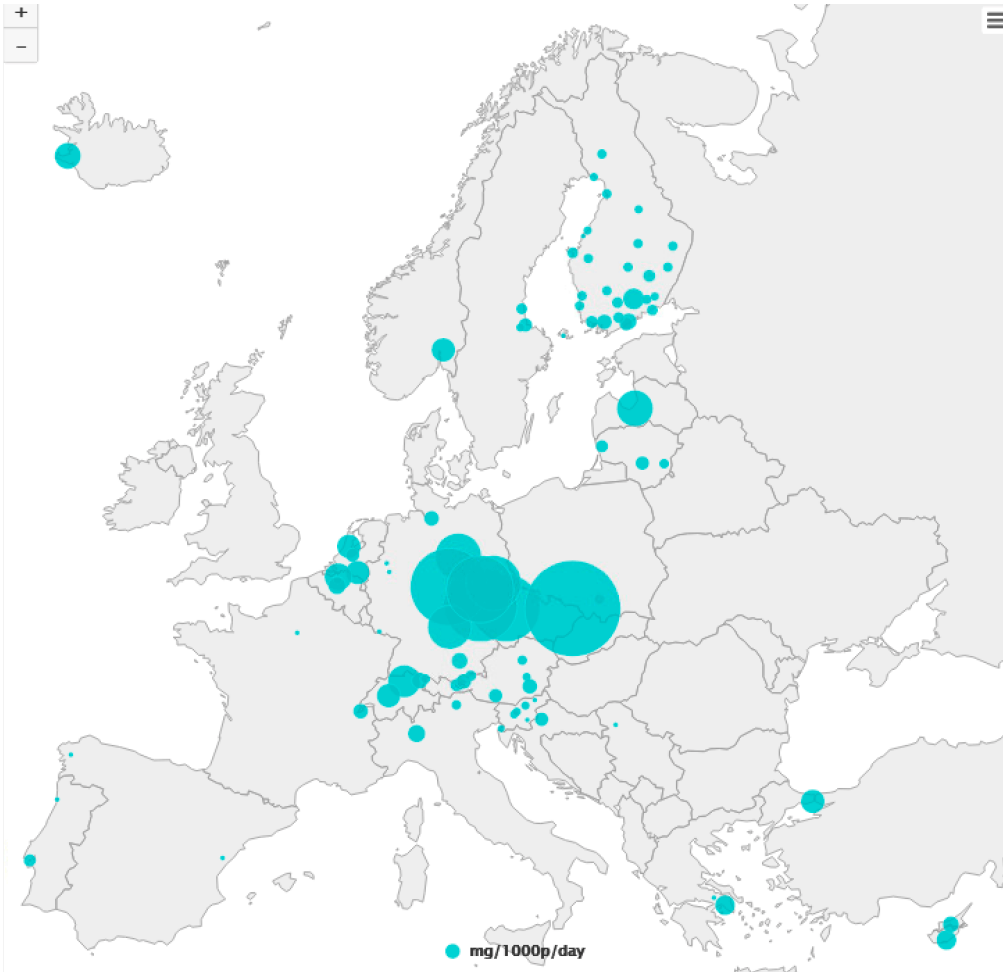
Figure 5: relative geographical distribution of amphetamine residues as detected in European cities, 2020 (daily mean)



To examine the data, use the data explorer, also available on this page. See the source data.

In contrast, methamphetamine use, generally low and historically concentrated in Czechia and Slovakia, now appears to be present also in Cyprus, the east of Germany, Spain and several northern European countries (Denmark, Finland, Lithuania, Norway). The observed methamphetamine loads in the other locations were very low to negligible.

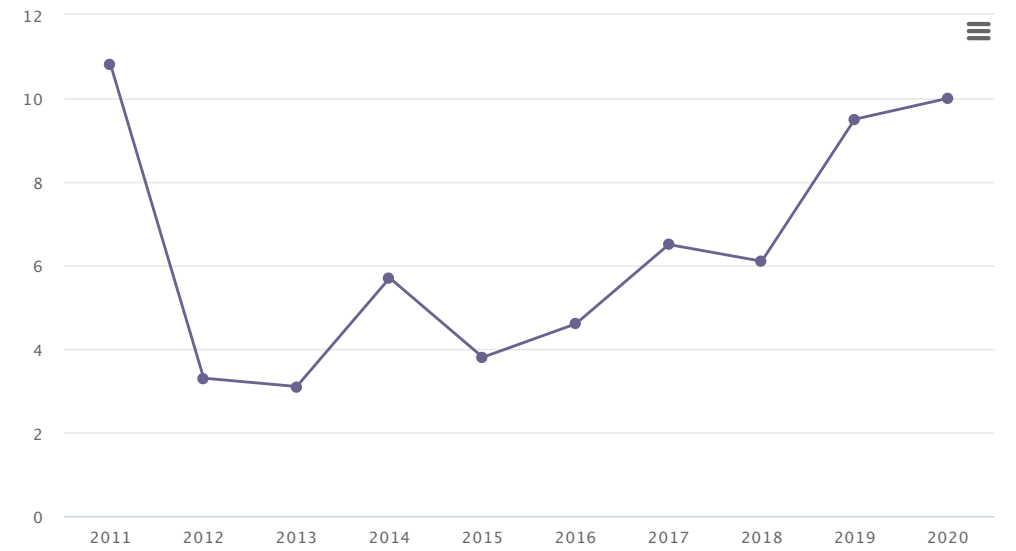
Figure 6: relative geographical distribution of methamphetamine residues as detected in European cities, 2020 (daily mean)



To examine the data, use the data explorer, also available on this page. See the source data.

Overall, the data related to amphetamine and methamphetamine from the ten monitoring campaigns showed no major changes in the general patterns of use observed. In 2020, the most recent data show that 20 of the 48 cities with data for 2019 and 2020 reported an increase for amphetamine and 19 cities a decrease. For methamphetamine use, the 2020 data show that 15 of the 50 cities with data for 2019 and 2020 reported an increase and 21 cities a decrease in the loads found.

Figure 7: Aggregated trends in methamphetamine residues in 5 EU cities, 2011 to 2020



NB: Trends in mean daily amounts of methamphetamine in milligrams per 1 000 head of population in Antwerp Zuid (Belgium), Paris Seine Centre (France), and Milan (Italy), Castellon and Santiago (Spain). These 5 cities were selected owing to the availability of annual data from 2011 to 2020.

In 2020, amphetamine and methamphetamine use were found to be distributed more evenly over the whole week than in previous years, possibly reflecting the use of these drugs being associated with more regular consumption by a cohort of high-risk users.

Comparison with findings from other monitoring tools

Because different types of information are provided by wastewater analysis (collective consumption of substances within a community) and by established monitoring tools, such as population surveys (prevalence in the last month or year), a direct comparison of the data is difficult. However, the patterns and trends being detected by wastewater analysis are largely, but not completely, in line with the analyses coming from other monitoring tools.

For example, both seizure and wastewater data present a picture of a geographically divergent stimulant market in Europe, where cocaine is more prevalent in the south and west, while amphetamines are more common in central and northern countries (EMCDDA, 2017). Similar results are also found in data coming from population surveys on drug use. While the general pattern detected in wastewater is in line with established monitoring tools, there are some exceptions.

Data from established indicators show that methamphetamine use have historically been restricted to Czechia, and more recently also Slovakia, although recent years have seen increased use in other countries (EMCDDA, 2016a). These findings have been confirmed by recent wastewater-based epidemiology, with the highest methamphetamine loads found in Czech, Slovak, German and Finnish cities.

Similarly, studies based on self-reported drug use and those using wastewater data both point towards the same weekly variations in use, with stimulants such as amphetamine and cocaine being primarily used at weekend music events and in celebratory contexts (Tossmann et al., 2001).

A limited but steadily increasing number of studies have been published comparing drug use estimates obtained through wastewater analysis and estimates provided by epidemiological surveys (EMCDDA, 2016b; van Wel et al., 2015). While in 2012 only one reported study tried to evaluate sewage analysis alongside traditional epidemiological techniques (Reid et al., 2012), this number has now increased considerably in recent years.

A first study, performed in Oslo, Norway, and published in 2012, compared the results from three different datasets (a general population survey, a roadside survey and wastewater analysis) (Reid et al., 2012).

Other studies compare and correlate wastewater-based consumption estimates of illicit drugs with other data sources, including self-reported data (Been et al., 2015; Castiglioni et al., 2016; van Wel et al., 2016a), consumption offences (Been et al., 2016a), illicit drug seizures (Baz-Lomba et al., 2016; Kankaanpää et al., 2014, 2016), purity of drug seizures (Bruno et al., 2018), syringe distribution estimates (Been et al., 2015), toxicological data (Kankaanpää et al., 2014, 2016) and the number of drug users in treatment (Krizman et al., 2016).

The majority of comparative studies have been carried out within European countries, including Belgium (van Wel et al., 2016a), Croatia (Krizman et al., 2016), Germany (Been et al., 2016a), Finland (Kankaanpää et al., 2014, 2016), Italy (Castiglioni et al., 2016), Spain (Bijlsma et al., 2018), Switzerland (Been et al., 2015; Been et al., 2016b), Turkey (Daglioglu, 2019), and across European countries (Baz-Lomba et al., 2016; Castrignanò et al., 2018; Löve et al., 2018). Outside Europe, in recent years studies have been published comparing wastewater-based estimates with other data sources in China (Du et al., 2015), Australia (Tscharke et al., 2015) and in countries where data on drug use are limited due to financial constraints or lack of monitoring tools (Archer et al., 2018; Moslah et al., 2018; Nguyen et al., 2018).

These examples confirm the promising future of wastewater-based epidemiology as a complementary approach to obtain a more accurate and balanced picture of substance use within different communities. Wastewater analysis can predict results from population surveys and can be used as a ‘first alert’ tool in the identification of new trends in drug consumption. In order to check the quality and accuracy of data, further comparisons between wastewater analysis and data obtained through other indicators are needed.

Limitations of this method

Wastewater analysis offers an interesting complementary data source for monitoring the quantities of illicit drugs used at the population level, but it cannot provide information on prevalence and frequency of use, main classes of users and purity of the drugs. Additional challenges arise from uncertainties associated with the behaviour of the selected biomarkers in the sewer, different back-calculation methods and different approaches to estimate the size of the population being tested (Castiglioni et al., 2013, 2016; EMCDDA, 2016b; Lai et al., 2014). The caveats in selecting the analytical targets for heroin, for example, make monitoring this drug in wastewater more complicated compared to other substances (Been et al., 2015). Also, the purity of street products fluctuates unpredictably over time and in different locations. Furthermore, translating the total consumed amounts into the corresponding number of average doses is complicated, as drugs can be taken by different routes and in amounts that vary widely, and purity levels fluctuate (Zuccato et al., 2008).

Efforts are being made to enhance wastewater monitoring approaches. For example, work has been undertaken on overcoming a major source of uncertainty related to estimating the number of people present in a sewer catchment at the time of sample collection. This involved using data from mobile devices to better estimate the dynamic population size for wastewater-based epidemiology (Thomas et al., 2017).

New developments and the future

Wastewater-based epidemiology has established itself as an important tool for monitoring illicit drug use and future directions for wastewater research have been explored (EMCDDA, 2016b).

First, wastewater analysis has been proposed as a tool to address some of the challenges related to the dynamic new psychoactive substances (NPS) market. This includes the large number of individual NPS, the relatively low prevalence of use and the fact that many of the users are actually unaware of exactly which substances they are using. A technique has been established to identify NPS that involves the collection and analysis of pooled urine from stand-alone portable urinals from nightclubs, city centres and music festivals, thereby providing timely data on exactly which NPS are currently in use at a particular location (Archer et al., 2013a, 2013b, 2015; Causanilles et al., 2017b; Kinyua, et al., 2016; Mackulak et al., 2019; Mardal et al., 2017; Reid et al., 2014;). The European project ‘NPS euronet’ aimed to improve the capacity to identify and assess the NPS being used in Europe. The project applied innovative analytical chemical and epidemiological methods and a robust risk-assessment procedure to improve the identification of NPS, to assess risks, and to estimate the extent and patterns of use in specific groups (e.g. at music festivals) and among the general population (Bade et al., 2017; González-Mariño et al., 2016).

Second, in addition to estimating illicit drug use, wastewater-based epidemiology has been successfully applied in recent years to providing detailed information on the use and misuse of alcohol (Boogaerts et al., 2016; Mastroianni et al., 2017; Rodríguez-Álvarez et al., 2015), tobacco (Senta et al., 2015; van Wel et al., 2016b) and medicines in a specific population (Baz-Lomba et al., 2016, 2017; Been et al., 2015; Krizman-Matasic et al., 2018). Furthermore, wastewater analysis can potentially provide information on health and illness indicators within a community (Kasprzyk-Hordern et al., 2014; Thomaidis et al., 2016; Yang et al., 2015).

Third, the potential for wastewater-based epidemiology to be used as an outcome measurement tool, in particular in the evaluation of the effectiveness of interventions that target drug supply (e.g. law enforcement) or drug demand (e.g. public health campaigns) has not yet been fully explored. Close collaboration between the different stakeholders involved, including epidemiologists, wastewater experts and legal authorities, is highly recommended in order to start examining these potential wastewater-based epidemiology applications (EMCDDA, 2016b). The WATCH project included a 30-day synthetic drug production monitoring campaign in three cities in Belgium and the Netherlands. High levels of MDMA were recorded during the whole monitoring period in one city in the Netherlands, suggesting continuous discharges of unconsumed MDMA from sources within the wastewater catchment area, indicating drug production was taking place in this region.

Fourth, by back-calculating the daily sewer loads of target residues, wastewater analysis can provide total consumption estimates, and specific efforts are now being directed towards finding the best procedures for estimating annual averages. In 2016 the EMCDDA presented for the first time illicit drug retail market size estimates in terms of quantity and value for the main substances used (EMCDDA and Europol, 2016). It is envisaged that findings from wastewater analysis can help to further develop work in this area.

Finally, new methods such as enantiomeric profiling have been developed to determine if mass loads of drugs in wastewater originated from consumption or from the disposal of unused drugs or production waste. It is now important to assess the possible utility of wastewater analysis to report on drug supply dynamics, including synthetic drug production (Emke et al., 2014). For example, recent malfunctioning of a small wastewater treatment plant in the Netherlands was caused by direct discharges in the sewage system of chemical waste from a drug production site. Further analysis revealed the actual synthesis process used to manufacture the corresponding drugs. The study confirmed that the chemical waste from the illegal manufacturing of stimulants will result in a specific chemical fingerprint that can be tracked in

wastewater and used for forensic purposes. Such profiles can be used to identify drug production or synthesis waste disposal in the wastewater catchment area (Emke et al., 2018).

Wastewater analysis has demonstrated its potential as a useful complement to established monitoring tools in the drugs area. It has some clear advantages over other approaches as it is not subject to response and non-response bias and can better identify the true spectrum of drugs being consumed, as users are often unaware of the actual mix of substances they take. This tool also has the potential to provide timely information in short timeframes on geographical and temporal trends. In order to check the quality and accuracy of data, further comparisons between wastewater analysis and data obtained through other indicators are needed.

As a method, wastewater analysis has moved from being an experimental technique to being a new method in the epidemiological toolkit. Its rapid ability to detect new trends can help target public health programmes and policy initiatives at specific groups of people and the different drugs they are using.

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Terms and definitions

In addition to the glossary below, see also Frequently-asked questions on wastewater-based epidemiology and drugs (/publications/topic-overviews/wastewater-and-drugs-frequently-asked-questions_en).

Back-calculation

Back-calculation is the process whereby researchers calculate/estimate the consumption of illicit drugs in the population based on the amounts of the target drug residue entering the wastewater treatment plant.

LC-MS/MS

Liquid chromatography–tandem mass spectrometry (LC-MS/MS) is the analytical method most commonly used to quantify drug residues in wastewater. LC-MS/MS is an analytical chemistry technique that combines the separation techniques of liquid chromatography with the analysis capabilities of mass spectrometry. Considering the complexity and the low concentrations expected in wastewater, LC-MS/MS is one of the most powerful techniques for this analysis, because of its sensitivity and selectivity.

Metabolite

Traces of drugs consumed will end up in the sewer network either unchanged or as a mixture of metabolites. Metabolites, the end products of metabolism, are the substances produced when the body breaks drugs down.

Residue

Wastewater analysis is based on the fact that we excrete traces in our urine of almost everything we consume, including illicit drugs. The target drug residue is what remains in the wastewater after excretion and is used to quantify the consumption of illicit drugs in the population.

Urinary biomarkers

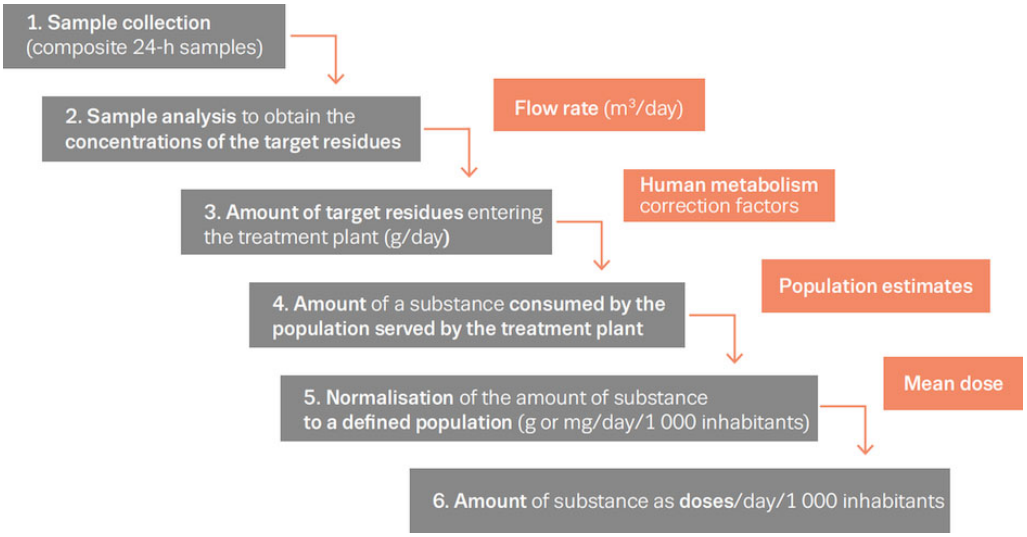
Analytical chemists look for urinary biomarkers (measurable characteristics to calculate population drug use) in wastewater samples, which can be the parent drug (i.e. the primary substance) or its urinary metabolites.

Enantiomeric profiling

Enantiomeric profiling is an analytical chemistry technique used to determine if studied drugs in wastewater originate from consumption or direct disposal (eq. production waste). It is based on the fact that chiral molecules (if only one chiral centre is present) exist as two enantiomers (opposite forms) which are non-superimposable mirror images of each other. As the enantiomeric ratio will change after human metabolism, the enantiomeric fraction can be used to determine whether the studied drugs in wastewater originate from consumption.

Methods and ethical considerations

In order to estimate levels of drug use from wastewater, researchers attempt first to identify and quantify drug residues, and then to back-calculate the amount of the illicit drugs used by the population served by the sewage treatment plants (Castiglioni et al., 2014). This approach involves several steps (see figure). Initially, composite samples of untreated wastewater are collected from the sewers in a defined geographical area. The samples are then analysed to determine the concentrations of the target drug residues. Following this, the drug use is estimated through back-calculation by multiplying the concentration of each target drug residue (nanogram/litre) with the corresponding flow of sewage (litre/day). A correction factor for each drug is taken into account as part of the calculation. In a last step, the result is divided by the population served by the wastewater treatment plant, which shows the amount of a substance consumed per day per 1 000 inhabitants. Population estimates can be calculated using different biological parameters, census data, number of house connections, or the design capacity, but the overall variability of different estimates is generally very high.


1. Sample collection (composite 24-h samples)
2. Sample analysis to obtain the concentrations of the target residues
Flow rate (m³/day)
3. Amount of target residues entering the treatment plant (g/day)
Human metabolism correction factors
4. Amount of a substance consumed by the population served by the treatment plant
Population estimates
5. Normalisation of the amount of substance to a defined population (g or mg/day/1 000 inhabitants)
Mean dose
6. Amount of substance as doses/day/1 000 inhabitants

Although primarily used to study trends in illicit drug consumption in the general population, wastewater analysis has also been applied to small communities, including workplaces, schools (Zuccato et al., 2017), music festivals, prisons (Nefau et al., 2017) and specific neighbourhoods (Hall et al., 2012).

Using this method in small communities can involve ethical risks (Prichard et al., 2014), such as possible identification of a particular group within the community.

In 2016 the SCORE group published ethical guidelines for wastewater-based epidemiology and related fields (Prichard et al., 2016). The objective of these guidelines is to outline the main potential ethical risks for wastewater research and to propose strategies to mitigate those risks. Mitigating risks means reducing the likelihood of negative events and/or minimising the consequences of negative events.

Find out more

- EMCDDA, 'Wastewater-based epidemiology topics page (/topics/wastewater)', EMCDDA website.
- EMCDDA, 'Frequently-asked questions on wastewater-based epidemiology and drugs (/publications/topic-overviews/wastewater-and-drugs-frequently-asked-questions)', EMCDDA website.
- EMCDDA (2016), Assessing illicit drugs in wastewater: Advances in wastewater-based drug epidemiology (/publications/insights/assessing-drugs-in-wastewater), EMCDDA Insights, Publications Office of the European Union, Luxembourg.
- EMCDDA video (2016): Wastewater-based drug epidemiology explained (https://www.youtube.com/watch?v=SbdiuEL2r4k&feature=youtu.be)
- University of Antwerp and National Geographic (2013), 'Behind the science: Drug sewers (https://www.youtube.com/watch?v=A-2pr6UBxro)' (video), YouTube.
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Source data

Notes

- **General notes on the data**
- **Using the data**
- **Substance-specific notes**
- **Site-specific notes**

Source data tables

- **Treatment plant site data table**
- **2020** data tables
  - Cocaine
  - Cannabis
  - Amphetamine
  - Methamphetamine
  - MDMA/ecstasy
- **2019** data tables
  - Cocaine

    - Cannabis
    - Amphetamine
    - Methamphetamine
    - MDMA/ecstasy
- **2018** data tables
    - Cocaine
    - Cannabis
    - Amphetamine
    - Methamphetamine
    - MDMA/ecstasy
- **2017** data tables
    - Cocaine
    - Cannabis
    - Amphetamine
    - Methamphetamine
    - MDMA/ecstasy
- **2016** data tables
    - Cocaine
    - Cannabis
    - Amphetamine
    - Methamphetamine
    - MDMA/ecstasy
- **2015** data tables
    - Cocaine
    - Cannabis
    - Amphetamine
    - Methamphetamine
    - MDMA/ecstasy
- **2014** data tables
    - Cocaine
    - Cannabis
    - Amphetamine
    - Methamphetamine
    - MDMA/ecstasy
- **2013** data tables
    - Cocaine
    - Cannabis
    - Amphetamine
    - Methamphetamine
    - MDMA/ecstasy
- **2012** data tables
    - Cocaine
    - Cannabis
    - Amphetamine
    - Methamphetamine
    - MDMA/ecstasy

- **2011** data tables
  - Cocaine
  - Cannabis
  - Amphetamine
  - Methamphetamine
  - MDMA/ecstasy

General notes

- **Population-normalised loads:** All values indicate the amount of drug residues quantified in raw sewage. No values were corrected with excretion factors.
- Cities with multiple sewage treatment plants (STPs): The numbers or letters in brackets specifies the STPs, which provided data for the corresponding city in this study. E.g. Berlin (4) indicates the population-weighted average of four different STPs in the city of Berlin.
- **Values below limit of quantification**: Values below the method limit of quantification are indicated as zero.
- In 2020, European countries experienced the emergence of the coronavirus disease (COVID-19) to a different extent and time. Significant differences between and within countries existed in the duration and nature of the COVID-19 (de)confinement measures and in the dates, which will have had different impacts on drug availability and use for each country. While wastewater analysis provides insights on drug use habits during the COVID-19 pandemic, it also challenges the way the 2020 data can be compared with previous years as it should be noted that the participating cities had different lockdown periods and restrictive measures in place. Additional and complementary data are indeed needed to fully understand the impact on the patterns of drug use.

Using the data

- The data may be re-used in your own work provided the source (EMCDDA and SCORE) are acknowledged.
- The data sets are presented by year and substance. Each data table is available to view in HTML and as a download (CSV format).
- In additionl to data values, a site information table is provided with information on the treatment plants where the measurements were made. Each site is identified with a unique arbitrary ID ('SiteID') which provides information on the location of the site. the institution responsible, and the approximate population served (the population values presented are indicative only and not necessarily the ones used at the time of the collection). This ID is refered to in each data table.

Substance-specific remarks

- **Benzoylecgonine:** this is the main excreted metabolite of cocaine.

- **THC-COOH:** this is the main excreted metabolite of cannabis

City-specific remarks

- **Berlin:** when merging the data for the four plants, it was taken into account the fact that no samples were collected in Berlin M in 2014 for Saturday and Sunday, in 2015 for Sunday and Monday, in 2018 for Saturday; for Berlin R in 2017 for Sunday and Monday.
- **Bordeaux**: when merging the data for the two plants, it was taken into account the fact that no sample was collected on Wednesday in Bordeaux II in 2018.
- **Bratislava:** in 2017 the method of estimating the population has changed (mobile phone connections, including non-permanent residents such as students) compared to previous years (based on census for permanent residents, de jure population).
- **Erfurt:** in 2020 no sample was collected on Friday, consequently week and weekend means were calculated respectively on six and three days.
- **Eindhoven:** exhibited high values for MDMA in 2012, 2013 and 2014, which was likely due to the release of unconsumed MDMA into the sewer system. Moreover, Eindhoven exhibited very high values for amphetamine in 2013 (Ort et al., 2014). In 2018 abnormal values of MDMA and amphetamine on Monday and Tuesday were not used for the calculation of weekend/weekday means because they were influenced by discharges of unconsumed MDMA and amphetamine. Methamphetamine and amphetamine 2019 results are not shown due to abnormal values probably caused by the release of unconsumed substances into the sewer system.
- **Eleusis:** in 2020 no sample was collected on Tuesday, while samples were collected on two Wednesday; consequently, the weekly averages were calculated using the samples of two Wednesday and no Tuesday.
- **Geneva:** in 2019 no sample was collected on Sunday, consequently week and weekend means were calculated respectively on six and three days.
- **Hamburg:** in 2020 no sample was collected on Monday, Wednesday, Friday and Saturday, while samples were collected on two Tuesdays and two Thursdays; consequently, the weekly averages were calculated using the samples of two Tuesdays, two Thursdays and a Sunday; the weekdays means were calculated using the samples of two Tuesdays and one Thursday; the weekend means were calculated using the samples of the Sunday only.
- **Istanbul:** results labelled “Istanbul I” represents a population of less than 1 % (69,000 people) of the Greater Istanbul population. Results labelled “Istanbul II-VII” are based on six other STPs covering a population of approx. 16.5mio people.
- **Koper:** in 2020 no sample was collected on Sunday, consequently week and weekend means were calculated respectively on six and three days.
- **Ljubljana:** exhibited very high values for MDMA in the 2020 sample of

Tuesday, which is responsible of a higher weekly and weekdays means. Nevethless, that value was included in the analysis as there were no indications of a problem in the sampling and there was no indication that it was due to the release of unconsumed MDMA into the sewer system.

- **Madrid:** results are based on one of multiple STPs, covering approximately 10 % of the population. Due to working activities at the waste water plant in the sampling period of 2018 part of the normal flow was redirected towards another treatment plant; for this reason the population used for normalization of 2018 results was lower (n=227,869).
- **Milan:** in 2020 no sample was collected on Monday, Wednesday and Thursday, while samples were collected on two Tuesdays; consequently, the weekly averages were calculated using the samples of two Tuesdays, a Friday, a Saturday and a Sunday; the weekdays means were calculated using the samples of two Tuesdays; the weekend means were calculated using the samples of a Friday, a Saturday and a Sunday only.
- **Munich Gut_Grosslappen:** in 2020 no sample was collected on Thursday and Friday, consequently week, weekdays and weekend means were calculated respectively on five, two and three days.
- Saarbrucken: data for 2018 derive from the merging of two plants for all substances but methamphetamine, for which values were above the level of quantification in one STP only.
- Santiago: in 2019 no sample was collected on Thursday, while samples were collected on two Tuesdays; consequently the weekly averages were calculated using the samples of two Tuesdays and no Thursdays.
- **St. Gallen:** in 2020 no sample was collected on Sunday, consequently week and weekend means were calculated respectively on six and three days.
- **Stockholm:** results labelled “Stockholm (2)” reflect the population-weighted average of two separate inlets from two Stockholm catchments, treated in the same STP. In 2019 samples were collected during one week in April and one week in October; the 2019 results presented are an average of the two weeks.
- **Velenje:** in 2019 no sample was collected on Thursday, while samples were collected on two Tuesdays; consequently the weekly averages were calculated using the samples of two Tuesdays and no Thursdays.
- **Zagreb:** exhibited very high values for amphetamine in the 2020 samples of Tuesday and Thursday, which are responsible of the high weekly and weekdays means. Nevethless, those values were included in the analysis as there were no indications of a problem in the sampling and there was no indication that it was due to the release of unconsumed amphetamine into the sewer system.

Wastewater sampling sites information

Download as CSV (/system/files/attachments/13776/WW-sites-2013-2020.csv)

Wastewater sampling sites information

SiteID	country	city	location	latitude	longit
site1	AT	Graz	ARA Graz	47.070713	15.43
site2	AT	Hall-Wattens	Abwasserverband Hall in Tirol-Fritzens	47.29168	11.59
site3	AT	Innsbruck	ARA-Innsbruck	47.269212	11.40
site4	AT	Kapfenberg	Kläranlage Kapfenberg	47.443562	15.29
site5	AT	Klosterneuburg	Klosterneuburg	48.309866	16.32
site6	AT	Kufstein	Abwasserverband Kufstein	47.582958	12.17
site7	AT	Mürzzuschlag	Kläranlage Langenwang	47.566639	15.61
site8	AT	Purgstall	GAV Erlauftal	48.057812	15.13
site9	AT	Region Millstattersee	Wasserverband Millstaettersee	46.81924	13.52
site10	AT	Strass im Zillertal	AIZ Abwasserverband	47.395748	11.82
site11	AT	Wasserverband Hofsteig	ARA Hofsteig	47.4852	9.676
site12	BA	Sarajevo	Butile	43.87	18.29

site13	BE	Antwerp Deurne	Deurne	51.22	4.46
site14	BE	Antwerp Zuid	Antwerpen-Zuid	51.2	4.39
site15	BE	Boom	Boom	51.08608	4.366
site16	BE	Brugge	Brugge	51.20942	3.225
site17	BE	Brussels	Brussel-Noord	50.86	4.36
site18	BE	Geraardsbergen	Geraardsbergen	50.77	3.88
site19	BE	Koksijde	Wulpen	51.1	2.7
site20	BE	Merchtem	Merchtem	50.95842	4.232
site21	BE	Ninove	Ninove	50.85	4.03
site22	BE	Oostende	Oostende	51.21543	2.928

site23	BE	Ruisbroek (Puurs)	Ruisbroek	50.79035	4.298
site24	CH	Basel	ARA Basel	47.56	7.59
site25	CH	Berne	ARA Bern	46.83	7.62
site26	CH	Geneva	STEP SIG	46.2	6.17
site27	CH	Lausanne	STEP Vidy	46.52	6.63
site28	CH	Lugano	Bioggio	46.02	8.91

site29	CH	St. Gallen Hofen	St. Gallen Hofen	47.42	9.38
site30	CH	Zurich	Werdhölzli	47.37	8.51
site31	CY	Limassol	Sewerage Board of Limassol-Amathus (SBLA)	34.69	33.02
site32	CY	Nicosia	Sewage treatment plant of Pano Deftera (Anthoupoli)- Sewerage Board of Nicosia	35.17	33.4
site33	CZ	Brno	Waterworks and sewage of city Brno	49.19506	16.60
site34	CZ	Budweis	UCOV CB	48.96	14.46

site35	CZ	Karlovy Vary	?OV Karloy Vary	50.23204	12.87
site36	CZ	Ostrava	Ú?OV Ostrava	49.833864	18.28
site37	CZ	Prague	UCOV Praha	50.08	14.43
site38	DE	Berlin (4)	Berlin 4 plants	52.52	13.4
site39	DE	Chemnitz	Chemnitz	50.827845	12.92
site40	DE	Dortmund	Deusen	51.52	7.46
site41	DE	Dresden	Dresden-Kaditz	51.05089	13.73
site42	DE	Dülmen	Dülmen	51.84	7.28
site43	DE	Erfurt	Erfurt	50.984768	11.02
site44	DE	Frankfurt (3)	Frankfurt 3 plants	50.110922	8.682
site45	DE	Hamburg (2)	Hamburg 2 plants	53.551085	9.993
site46	DE	Hannover (2)	Hannover 2 plants	52.375892	9.732
site47	DE	Magdeburg		52.120533	11.62
site48	DE	Mainz	Mainz	49.992862	8.247

site49	DE	Munich Gut_Grosslappen	Gut_Grosslappen	48.14	11.58
site50	DE	Nuremberg	Nürnberg	49.452102	11.07
site51	DE	Rostock	Rostock	54.092441	12.09
site52	DE	Saarbrucken (2)	Saarbrucken 2 plants	49.240157	6.996
site53	DE	Stuttgart	Stuttgart	48.775846	9.182
site54	DK	Copenhagen	Lynetten	55.69	12.62
site55	ES	Barcelona	Baix Llobregat	41.43	1.97
site56	ES	Castellon	EDAR Castellón	40.23	-0.12
site57	ES	Madrid VdlV	Viveros de la Villa	40.41669	-3.70
site58	ES	Molina de Segura		38.051681	-1.20

site59	ES	Santiago	Silvouta	42.88	-8.54
site60	ES	Valencia (3)	Valencia 3 plants	39.46	-0.33
site61	FI	Espoo	Suomenoja	60.16	24.71
site62	FI	Helsinki	Viikinmäki	60.23	24.99
site63	FI	Hämeenlinna	Paroinen	60.99601	24.46
site64	FI	Joensuu	Kuhasalo	62.58	29.73
site65	FI	Jyväskylä	Nenäinniemi	62.21	25.77
site66	FI	Kajaani	Peuraniemi	64.227	27.72
site67	FI	Kemi	Peurasaari	65.73609	24.56

site68	FI	Kokkola	Hopeakivenlahti	63.83848	23.13
site69	FI	Kotka	Mussalo	60.45	26.89
site70	FI	Kouvola	Mäkikylä	60.8679	26.70
site71	FI	Kuopio	Lehtoniemi	62.96	27.01
site72	FI	Lahti	Kariniemi	60.99	25.65
site73	FI	Lappeenranta	Toikansuo	60.93	27.3
site74	FI	Mariehamn	Lotsbroverket	60.09693	19.93
site75	FI	Mikkeli	Kenkäveronniemi	61.68852	27.27
site76	FI	Oulu	Taskila	65.05	25.41
site77	FI	Pietarsaari	Alheda	63.67486	22.70

site78	FI	Pori	Luotsinmäki	61.48519	21.79
site79	FI	Rauma	Maanpäänniemi	61.12724	21.51
site80	FI	Rovaniemi	Alakorkalo	66.5	25.72
site81	FI	Salo	Salo	60.38333	23.13
site82	FI	Savonlinna	Pihlajaniemi	61.86	28.85
site83	FI	Seinäjoki	Seinäjoki	62.79446	22.82
site84	FI	Tampere	Viinikanlahti	61.49	23.77
site85	FI	Turku	Kakolanmäki	60.44	22.24
site86	FI	Vaasa	Patt	63.1	21.62
site87	FI	Vihti	Nummela	60.41699	24.31
site88	FR	Bordeaux I	Louis Fargue	44.837789	-0.58

site89	FR	Fort-de-France P	Pointe des Nègres	14.616065	-61.0
site90	FR	Paris Seine Centre	Seine Centre	48.95	2.27
site91	FR	Paris South Suburbs	South Suburbs	48.856614	2.352
site92	GB	Bristol	Avonmouth	51.503457	-2.69
site93	GB	London	Beckton	51.53	0.05
site94	GR	Athens	City of Athens WWTP	37.9928017	23.76
site95	GR	Eleusis	City of eleusis WWTP	38.323372	23.31
site96	GR	Mytilene		39.106738	26.55
site97	GR	Thessaloniki		40.640063	22.94

site98	HR	Zagreb	Central wastewater treatment plant of the city of Zagreb	45.7929993	15.94
site99	IS	Reykjavik Klettagarðar	Klettagarðar	64.126521	-21.8
site100	IT	Bozen	Kläranlage Bozen	46.49672	11.35
site101	IT	Milan	Nosedo	45.4337997	9.221
site102	LT	Kaunas	Kaunas	54.89687	23.89
site103	LT	Klaipeda	Klaipeda	55.78282	21.49
site104	LT	Vilnius	Vilniaus vandenys	54.687156	25.27
site105	LV	Riga	Riga	56.94965	24.10
site106	MT	Malta		35.937496	14.37
site107	NL	Amsterdam	RWZI Amsterdam-WEST	52.375	4.866
site108	NL	Eindhoven	RWZI Eindhoven	51.4421082	5.480
site109	NL	Nieuwegein Ijssel.	RWZI Nieuwegein	52.024821	5.091

site110	NL	Oudewater	RWZI Oudewater	52.024163	4.868
site111	NL	Utrecht	RWZI Utrecht	52.0858002	5.130
site112	NO	Oslo	VEAS	59.9156914	10.85
site113	PL	Krakow P	Krakow Plaszow	50.06	19.94
site114	PT	Almada	Mutela	38.675187	-9.15
site115	PT	Lisbon	Alcântara	38.7044907	-9.17
site116	PT	Porto		41.157944	-8.62
site117	RO	Cluj Napoca		46.7780991	23.61
site118	RS	Belgrade	Sewer system Usce (outlet in Danube river)	44.8130989	20.46
site119	RS	Novi Sad		45.3039017	19.82

site120	SE	Gothenburg	Ryaverket	57.6828995	12.07
site121	SE	Gävle	Duvbacken	60.674622	17.14
site122	SE	Sandviken	Hedåsen ARV	60.61667	16.76
site123	SE	Stockholm (2)	Henriksdal 1 and Sicklainloppet	59.329323	18.06
site124	SE	Söderhamn	Granskär ARV	61.30373	17.05
site125	SE	Umea	Ons avloppsreningsverk	63.8181992	20.31
site126	SE	Uppsala	Site 1	59.858562	17.63
site127	SI	Domžale-Kamnik	Domžale-Kamnik	46.13788	14.59
site128	SI	Koper	Central wastewater treatment plant Koper	45.548058	13.73
site129	SI	Ljubljana	Central wastewater treatment plant Ljubljana	46.056947	14.50
site130	SI	Maribor	Maribor	46.55734	15.64
site131	SI	Novo mesto	Wastewater treatment plant Novo mesto	45.804211	15.16
site132	SI	Velenje	Central wastewater treatment plant Šaleške Doline	46.362274	15.11

			(Šalek Valley)		
site133	SK	Bratislava (2)	Bratislava 2 plants	48.14925	17.10
site134	SK	Piestany		48.5918007	17.80
site135	TR	Adana	Seyhan	36.991421	35.33
site136	TR	Istanbul I	Catalca-Ahmediye	41.013	28.97
site137	TR	Istanbul (II-VII)	Istanbul (II-VII)	41.013	28.97

Data from 2020 study

2020: cocaine

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Cocaine residues/metabolite (benzoylecgonine) in wastewater in selected Eu

SiteID	country	city	Wednesday	Thursday	Friday	Saturd
site1	AT	Graz	98.22	107.09	138.97	277.65
site2	AT	Hall-Wattens	198.51	191.85	188.4	252.67
site3	AT	Innsbruck	272.4	285.7	352.42	403.34
site4	AT	Kapfenberg	148.49	157.88	118.73	204.25
site6	AT	Kufstein	364.86	369.03	440.21	449.37
site8	AT	Purgstall	30.39	19.28	21.52	17.96
site9	AT	Region Millstattersee	83.16	60.52	74.26	101.62
site10	AT	Strass im Zillertal	94.1	97.21	119.48	171.26
site11	AT	Wasserverband Hofsteig	100.95	163.51	171.02	162.2
site14	BE	Antwerp Zuid	1049.69	949.03	1126.59	1201.2
site15	BE	Boom	456.63	463.37	382.86	365.78
site17	BE	Brussels	445.45	525.75	492.9	534.19
site25	CH	Berne	512.87	520.74	553.28	664.97
site26	CH	Geneva	530.6	540.8	530.63	569.24
site29	CH	St. Gallen Hofen	624.28	619.53	744.62	959.27
site30	CH	Zurich	731.69	659.17	810.15	1237.3
site31	CY	Limassol	42.91	46.65	47.98	41.17
site32	CY	Nicosia	73.14	43.82	69.74	54.65
site35	CZ	Karlovy Vary	55.04	64.31	68.19	104.35
site36	CZ	Ostrava	37.3	43.37	41.66	74.31
site37	CZ	Prague	228.38	289.9	237.2	397.94
site39	DE	Chemnitz	20.99	18.99	22.2	33.38
site40	DE	Dortmund	302.36	252.51	242.48	247.62
site41	DE	Dresden	36.01	29.29	54.13	48.68
site42	DE	Dülmen	89.73	114	139.57	178.04
site43	DE	Erfurt	54.33	56.05		78.39
site45	DE	Hamburg (2)	421.27	359.37		
site47	DE	Magdeburg	158.58	166.37	155.88	208.78
site49	DE	Munich Gut_Grosslappen	246.4			222.14

site50	DE	Nuremberg	28.01	34.54	37.72	48.99
site52	DE	Saarbrucken (2)	156.54	150.6	183.02	203.65
site56	ES	Castellon	445.46	487.24	417.29	397.07
site59	ES	Santiago	575.31	481.6	535.38	961.35
site61	FI	Espoo	33.12	36.87	38.98	63.06
site62	FI	Helsinki	51.52	62.03	71.59	117.43
site63	FI	Hämeenlinna	4.75	4.33	8.19	22.09
site64	FI	Joensuu	1.7	1.62	1.94	2.58
site65	FI	Jyväskylä	2.9	3.08	2.4	4.54
site66	FI	Kajaani	1.01	1.72	0.49	0.64
site67	FI	Kemi	0.19	3.04	2.55	4.06
site68	FI	Kokkola	0.59	0.63	0.85	0.86
site69	FI	Kotka	17.48	11.87	9.27	21.56
site70	FI	Kouvola	9.31	6.47	7.87	8.85
site71	FI	Kuopio	1.22	0.61	1.64	11.87
site72	FI	Lahti	20.1	36.7	28.35	44.67
site73	FI	Lappeenranta	2.29	1.61	1.07	1.54
site74	FI	Mariehamn	22.69	32.77	31.6	67.27
site75	FI	Mikkeli	2.8	3.17	3.19	3.07
site76	FI	Oulu	2.87	2.27	3.38	5.25
site77	FI	Pietarsaari	0.14	0.15	0.46	0.13
site78	FI	Pori	3.38	2.56	2.99	5.61
site79	FI	Rauma	0.9	1.07	0.24	0.86
site80	FI	Rovaniemi	2.38	4.87	4.87	4.52
site81	FI	Salo	1.13	2.27	2.81	2.55
site82	FI	Savonlinna	1.9	0.58	0.93	1.99
site83	FI	Seinäjoki	4.87	4.18	6.6	10.11
site84	FI	Tampere	12.65	12.17	14.55	26.44
site85	FI	Turku	8.9	12.65	15.61	26.24
site86	FI	Vaasa	2.89	1.17	0.97	2.18
site87	FI	Vihti	9.53	11.01	7.88	24.68
site90	FR	Paris Seine Centre	410.4	475.08	410.75	387.83

site98	HR	Zagreb	404.92	486.96	544.26	637.92
site99	IS	Reykjavik Klettagarðar	201.58	290.26	310.08	364.19
site100	IT	Bozen	282.33	310.22	332.48	387.81
site101	IT	Milan	342.15		346.31	539.14
site102	LT	Kaunas	55.65	57.53	57.73	72.79
site103	LT	Klaipeda	60.38	68.02	61.98	74.1
site104	LT	Vilnius	47.03	63.33	55.53	143.52
site105	LV	Riga	45.4	80.48	76.92	94.2
site107	NL	Amsterdam	706.35	715.85	855.76	712.68
site108	NL	Eindhoven	436.08	448.96	545.83	611.89
site111	NL	Utrecht	397.49	417.12	533.71	632.15
site112	NO	Oslo	193.3	187.17	318.69	295.54
site113	PL	Krakow P	42.78	54.38	59.5	62.86
site114	PT	Almada	322.29	282.04	189.01	162.5
site115	PT	Lisbon	343.95	365.92	368.38	447.41
site116	PT	Porto	341.01	356.55	321.27	336.83
site119	RS	Novi Sad	146.73	121.31	135.54	126.25
site121	SE	Gävle	72.46	63.13	84.16	164.78
site122	SE	Sandviken	33.29	52.34	84.23	139.17
site123	SE	Stockholm (2)	213.87	274.25	298.98	407.29
site124	SE	Söderhamn	19.42	18.99	55.36	67.28
site126	SE	Uppsala	72.75	74.28	95.61	124.93
site127	SI	Domžale-Kamnik	148.8	159.51	155.53	175.91
site128	SI	Koper	306.04	305.32	344.2	363.01
site129	SI	Ljubljana	287.91	302.94	301.75	401.16
site130	SI	Maribor	114.96	128.11	148.12	175.68
site131	SI	Novo mesto	85.13	99.88	103.75	143.97
site132	SI	Velenje	124.17	112.96	167.66	161.06
site135	TR	Adana	5.09	4.89	5.57	3.16
site137	TR	Istanbul (II-VII)	45.23	58.05	43.9	55.79

2020: cannabis

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Cannabis residues in wastewater in selected European cities, 2020

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site1	AT	Graz	46.87	48.68	44.34	67.07
site2	AT	Hall-Wattens	45.97	35.34	40.26	34.64
site3	AT	Innsbruck	49.39	57.14	66.73	62.27
site4	AT	Kapfenberg	64.28	65.89	73.77	62.04
site6	AT	Kufstein	55.81	61.25	72.51	52.99
site8	AT	Purgstall	39.75	36.44	28.81	31.87
site9	AT	Region Millstattersee	31.47	32.35	32.14	32.72
site10	AT	Strass im Zillertal	30.27	29.68	27.33	27.12
site11	AT	Wasserverband Hofsteig	67.96	76.49	101.82	60.38
site25	CH	Berne	7.07	5.02	21.14	8.01
site26	CH	Geneva	234.96	208.32	194.78	182.53
site29	CH	St. Gallen Hofen	10.84	9.6	18.42	8.91
site30	CH	Zurich	102.03	129.09	105.46	92.16
site35	CZ	Karlovy Vary	98	94.51	104.6	94.56
site36	CZ	Ostrava	65.78	67.29	67.1	94.65
site37	CZ	Prague	89.15	90.86	77.75	126.82
site56	ES	Castellon	67.25	66.83	55.3	64.97
site59	ES	Santiago	85.45	172.4	74.56	82.31
site90	FR	Paris Seine Centre	176.01	186.24	168.66	109.61
site94	GR	Athens	30.62	33.72	41.95	40.74
site95	GR	Eleusis	6.42	12.57	25.43	42.52
site98	HR	Zagreb	145.47	350.12	275.63	218.11
site99	IS	Reykjavik Klettagarðar	103.3	146.18	111.12	87.2
site100	IT	Bozen	32.34	31.2	35.66	33.26

site101	IT	Milan	42.16		39.46	63.61
site107	NL	Amsterdam	275.32	260.23	252.46	226.22
site108	NL	Eindhoven	129.49	130.53	156.43	122.38
site111	NL	Utrecht	137.66	111.76	137.54	150.22
site113	PL	Krakow P	29.45	30.7	29.25	29.46
site114	PT	Almada	110.28	129.81	113.47	98.81
site115	PT	Lisbon	91.63	98.13	97.44	86.37
site116	PT	Porto	67.18	38.21	37.76	70.62
site121	SE	Gävle	37.62	38.68	76.25	56.91
site122	SE	Sandviken	39.14	46.4	39.84	35.23
site124	SE	Söderhamn	34.15	37.06	46.49	33.93
site135	TR	Adana	20.1	17.72	21.73	0.45
site137	TR	Istanbul (II-VII)	43.21	34.47	36.78	38.62

2020: amphetamine

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Amphetamine residues in wastewater in selected European cities, 2020

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site1	AT	Graz	22.49	25.64	24.75	48.79
site2	AT	Hall-Wattens	6.17	9.74	5.95	9.84
site3	AT	Innsbruck	13.69	15.81	18.43	22.28
site4	AT	Kapfenberg	24.42	19.44	16.04	36.81
site6	AT	Kufstein	14.84	11.94	12.8	16.11
site8	AT	Purgstall	19.72	22.64	27.49	18.83
site9	AT	Region Millstattersee	5.97	5.63	7.49	6.97
site10	AT	Strass im Zillertal	12.72	11.44	12.5	12.49
site11	AT	Wasserverband Hofsteig	16.96	26.41	28.4	17.8
site14	BE	Antwerp Zuid	351.13	315.42	315.51	334.23
site15	BE	Boom	242.21	245.19	259.41	294.07

site17	BE	Brussels	53.96	65.45	55.39	55.27
site25	CH	Berne	52.49	48.84	61.68	54.19
site26	CH	Geneva	0	0	0	0
site29	CH	St. Gallen Hofen	52.05	68.52	93.58	136.83
site30	CH	Zurich	41.53	36.23	41.04	43.23
site31	CY	Limassol	7.83	1.8	1.96	1.6
site32	CY	Nicosia	3.82	2.81	2.77	1.94
site35	CZ	Karlovy Vary	30.82	31.41	32.97	32.09
site36	CZ	Ostrava	61.93	66.84	71.49	87.87
site37	CZ	Prague	36.91	43.36	35.79	42.63
site39	DE	Chemnitz	19.62	24.04	19.1	18.73
site40	DE	Dortmund	144.57	141.02	135.36	126.06
site41	DE	Dresden	27.33	21.69	41.82	26.7
site42	DE	Dülmen	146.24	131.89	134.04	146.04
site43	DE	Erfurt	41.82	40.11		37.18
site45	DE	Hamburg (2)	56.79	68.8		
site47	DE	Magdeburg	116.28	114.53	108.04	129.31
site49	DE	Munich Gut_Grosslappen	14.85			14.44
site50	DE	Nuremberg	25.06	28.13	33.31	39.19
site52	DE	Saarbrucken (2)	323.47	279.49	287.66	294.64
site56	ES	Castellon	0	0	0	0
site59	ES	Santiago	0	0	0	0
site61	FI	Espoo	163.94	152.9	170.31	179.92
site62	FI	Helsinki	221.41	219.7	237.13	286.65
site63	FI	Hämeenlinna	125.83	117.03	121.59	125.35
site64	FI	Joensuu	124.24	140.46	208.88	156.62
site65	FI	Jyväskylä	92.77	100.73	93.92	115.44
site66	FI	Kajaani	68.46	62.62	69.77	56.76
site67	FI	Kemi	225.23	257.18	246.27	300.76
site68	FI	Kokkola	32.25	36.59	27.44	25.04
site69	FI	Kotka	185.3	176.56	187.05	215.09
site70	FI	Kouvola	223.15	225.61	230.29	302.18

site71	FI	Kuopio	150.65	195.7	207.33	237.64
site72	FI	Lahti	294.12	342.31	349.51	418.75
site73	FI	Lappeenranta	85.95	87.74	109.83	91.31
site74	FI	Mariehamn	15.57	18.7	13.66	17.41
site75	FI	Mikkeli	106.25	109.7	120.96	150.26
site76	FI	Oulu	109.47	98.92	99.89	127.69
site77	FI	Pietarsaari	24.68	24.76	30.46	34.84
site78	FI	Pori	86.36	69.07	78.37	79.53
site79	FI	Rauma	56.29	50.69	46.51	61.7
site80	FI	Rovaniemi	127.09	134.21	162.27	198.32
site81	FI	Salo	145.98	153.53	153.44	185.92
site82	FI	Savonlinna	52.3	48.31	40.92	37.81
site83	FI	Seinäjoki	44.98	50.31	53.48	49.15
site84	FI	Tampere	117.57	142.72	191.52	222.44
site85	FI	Turku	92.06	94.01	103.75	125.75
site86	FI	Vaasa	145.29	169.97	175.46	212.58
site87	FI	Vihti	127.32	134.08	161.55	187.68
site90	FR	Paris Seine Centre	0	0	0	0
site98	HR	Zagreb	348.64	1556.2	496.74	274.4
site99	IS	Reykjavik Klettagarðar	265.77	358.62	371.46	374.31
site100	IT	Bozen	1.03	1.81	2.21	2.19
site101	IT	Milan	0		0	0
site102	LT	Kaunas	41.78	40.68	43.19	41.52
site103	LT	Klaipeda	14.89	22.71	15.48	45.56
site104	LT	Vilnius	69.76	45.44	44.84	70.27
site105	LV	Riga	31.44	54.98	57.42	61
site107	NL	Amsterdam	125.32	108.35	114.16	99.32
site108	NL	Eindhoven	214.32	285.44	246.29	330.42
site111	NL	Utrecht	141.31	127.6	173	175.4
site112	NO	Oslo	234.3	204.02	248.96	230.87
site113	PL	Krakow P	69.81	67.26	75.69	71.75

site114	PT	Almada	0.44	0.43	0.43	0
site115	PT	Lisbon	2	2.77	15.82	2.85
site116	PT	Porto	0	0	0	0
site119	RS	Novi Sad	72.4	62.06	71.13	64.09
site121	SE	Gävle	1423.91	759.5	761.22	802.1
site122	SE	Sandviken	427.9	501.37	503.47	576.57
site123	SE	Stockholm (2)	320.95	346.31	318.34	305.93
site124	SE	Söderhamn	334.7	362.6	329.99	280.01
site126	SE	Uppsala	155.5	159.23	148.91	184.35
site127	SI	Domžale-Kamnik	0	0	0	0
site128	SI	Koper	0	0	0	0
site129	SI	Ljubljana	12.73	10.1	13.13	14.29
site130	SI	Maribor	6.04	8.36	8.71	1.87
site131	SI	Novo mesto	2	6.41	2.15	2.09
site132	SI	Velenje	85.78	80.06	123.24	113.1

2020: methamphetamine

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Methamphetamine residues in wastewater in selected European cities, 2020

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site1	AT	Graz	6.33	6.73	5.85	11.3
site2	AT	Hall-Wattens	4.89	3.21	3.57	3.79
site3	AT	Innsbruck	4.99	3.4	4.15	3.11
site4	AT	Kapfenberg	1.36	2.26	0.45	0.8
site6	AT	Kufstein	1.45	0.26	7.01	1.7
site8	AT	Purgstall	2.26	0.88	0.79	0.72
site9	AT	Region Millstattersee	5.02	5.93	5.65	4.97
site10	AT	Strass im Zillertal	5.96	7.65	7.8	7.16
site11	AT	Wasserverband Hofsteig	0.62	4.18	0.82	0.52

site14	BE	Antwerp Zuid	37.71	34.22	34.87	36.92
site15	BE	Boom	1	1.02	1.01	1.53
site17	BE	Brussels	11.42	11.09	10.76	13.15
site25	CH	Berne	29.64	28.22	27.85	31.87
site26	CH	Geneva	7.3	6.15	6.55	7.92
site29	CH	St. Gallen Hofen	9.29	8.15	8.36	7.8
site30	CH	Zurich	58.83	50.74	54.92	64.51
site31	CY	Limassol	24.33	14.53	17.85	9.77
site32	CY	Nicosia	11.39	8.71	10.34	11.46
site35	CZ	Karlovy Vary	379.93	408.59	440.23	410.87
site36	CZ	Ostrava	696.2	684.09	638.1	748.51
site37	CZ	Prague	315.99	355.27	305.42	349.54
site39	DE	Chemnitz	351.61	339.16	337.78	367.91
site40	DE	Dortmund	0	0	0	0
site41	DE	Dresden	212.24	159.72	282.11	207.3
site42	DE	Dülmen	0	0	0	0
site43	DE	Erfurt	440.02	429.13		382.98
site45	DE	Hamburg (2)	13.62	5.3		
site47	DE	Magdeburg	141.05	163.66	128.87	146.18
site49	DE	Munich Gut_Grosslappen	6.69			10.19
site50	DE	Nuremberg	102.71	114.73	123.19	140.36
site52	DE	Saarbrucken (2)	0	0	0	0
site56	ES	Castellon	0	0	0	0
site59	ES	Santiago	0	0	0	0
site61	FI	Espoo	3.6	4.65	4.73	6.32
site62	FI	Helsinki	9.26	10.2	8.9	10.71
site63	FI	Hämeenlinna	2.25	2.33	2.08	2.89
site64	FI	Joensuu	1.59	1.49	1.72	1.3
site65	FI	Jyväskylä	3.68	2.03	1.51	1.85
site66	FI	Kajaani	0.93	1.29	1.31	1.34
site67	FI	Kemi	0.91	1	0.95	0.92
site68	FI	Kokkola	0.85	0.78	0.6	0.68

site69	FI	Kotka	3.07	2.51	2.24	3.16
site70	FI	Kouvola	2.04	2.22	2.22	2.44
site71	FI	Kuopio	1.69	1.56	1.84	1.76
site72	FI	Lahti	9.87	12.15	43.88	10.89
site73	FI	Lappeenranta	0.68	0.77	1.06	0.92
site74	FI	Mariehamn	0	0	0	0
site75	FI	Mikkeli	8.34	6.03	6.45	4.5
site76	FI	Oulu	1.04	0.89	0.97	1.31
site77	FI	Pietarsaari	0	0	0	0
site78	FI	Pori	1.39	1.27	1.31	1.62
site79	FI	Rauma	1.41	2.37	1.65	1.25
site80	FI	Rovaniemi	1.79	1.71	1.79	2.08
site81	FI	Salo	5.59	5.9	6.72	8.54
site82	FI	Savonlinna	2.38	2.84	1.02	0.75
site83	FI	Seinäjoki	1.94	1.28	1.21	2.61
site84	FI	Tampere	1.34	1.83	1.63	2.29
site85	FI	Turku	3.63	3.59	4.53	4.78
site86	FI	Vaasa	2.41	2.9	2.88	2.58
site87	FI	Vihti	1.37	2.71	5.01	3.28
site90	FR	Paris Seine Centre	0	0	0	0
site94	GR	Athens	17.55	18.45	19.36	15.89
site95	GR	Eleusis	0	0	0	0
site98	HR	Zagreb	3.67	7.55	3	2.3
site99	IS	Reykjavik Klettagarðar	45.23	30.08	28.89	32.17
site100	IT	Bozen	1.52	0.95	1.54	0.9
site101	IT	Milan	8.88		8.95	13.64
site102	LT	Kaunas	6.24	5.74	5.57	4.97
site103	LT	Klaipeda	3.55	3.78	3.47	4.34
site104	LT	Vilnius	1.64	1.31	1.91	2.67
site105	LV	Riga	52.88	75.9	80.23	82.98
site107	NL	Amsterdam	25.63	25	29.7	22.99

site108	NL	Eindhoven	8.33	12.05	24.63	92.46
site111	NL	Utrecht	3.52	4.05	3.37	3.99
site112	NO	Oslo	28.09	24.13	32.81	30.43
site113	PL	Krakow P	1.54	2.14	1.82	1.9
site114	PT	Almada	0	0	0	0
site115	PT	Lisbon	3.1	2.33	3.05	3.63
site116	PT	Porto	0	0	0	0
site119	RS	Novi Sad	0	0	0	0
site121	SE	Gävle	4.18	2.76	3.77	5.37
site122	SE	Sandviken	1.21	0.79	0.34	1.29
site123	SE	Stockholm (2)	11.78	22.82	14.13	11.97
site124	SE	Söderhamn	2.91	1.43	2.36	2.94
site126	SE	Uppsala	2.13	1.91	1.2	0.98
site127	SI	Domžale-Kamnik	1.17	1.54	1.42	0.1
site128	SI	Koper	0.43	0.44	0.82	0.1
site129	SI	Ljubljana	1.89	1.63	0.79	0.61
site130	SI	Maribor	0	0	0	0
site131	SI	Novo mesto	0	0	0	0
site132	SI	Velenje	0.16	1.96	1.57	1.62
site137	TR	Istanbul (II-VII)	45.88	24.52	20.53	24.43

2020: MDMA/ecstasy

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MDMA/ecstasy residues in wastewater in selected European cities, 2020

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site1	AT	Graz	6.13	7.97	9.37	30.93
site2	AT	Hall-Wattens	5.41	4.23	4.49	11.07
site3	AT	Innsbruck	17.32	15.46	22.18	31.73
site4	AT	Kapfenberg	9.66	13.42	12.87	21.72
site6	AT	Kufstein	15.31	11.94	12.34	63.66
site8	AT	Purgstall	1	2.26	4.08	4

site9	AT	Region Millstattersee	3.64	2	2.75	5.68
site10	AT	Strass im Zillertal	7.59	6.79	5.63	9.18
site11	AT	Wasserverband Hofsteig	5.44	4.07	3.82	2.33
site14	BE	Antwerp Zuid	72.7	46.48	65.55	74.96
site15	BE	Boom	19.55	18.33	18.59	16.91
site17	BE	Brussels	16.18	17.94	14.7	27.29
site25	CH	Berne	5.72	9.85	14.97	30.62
site26	CH	Geneva	20.88	21.55	22.69	32.84
site29	CH	St. Gallen Hofen	7.18	19.45	14.59	24.43
site30	CH	Zurich	15.39	14.04	17.3	37.51
site31	CY	Limassol	2.71	1.37	1.4	2.42
site32	CY	Nicosia	1.09	1.53	0.46	0.3
site35	CZ	Karlovy Vary	8.88	9.17	8.21	15
site36	CZ	Ostrava	10.49	10.73	12.98	29.56
site37	CZ	Prague	21.14	24.57	26.79	72.24
site39	DE	Chemnitz	8.45	12.02	10.74	13.21
site40	DE	Dortmund	19.32	18.68	13.82	13.71
site41	DE	Dresden	8.43	33.08	18.04	18.06
site42	DE	Dülmen	4.5	5.6	6.3	9.94
site43	DE	Erfurt	10.37	9.28		8.96
site45	DE	Hamburg (2)	17.97	13.01		
site47	DE	Magdeburg	14.15	14.47	16.45	21.12
site49	DE	Munich Gut_Grosslappen	19.87			15.72
site50	DE	Nuremberg	1.23	1.23	3.18	7.1
site52	DE	Saarbrucken (2)	19.49	17.59	19.18	21.73
site56	ES	Castellon	0.99	1.06	1.05	2.41
site59	ES	Santiago	21.84	19	20.6	48.89
site61	FI	Espoo	18.36	15.2	19.52	39.32
site62	FI	Helsinki	22.93	21.28	23.86	58.51
site63	FI	Hämeenlinna	5.78	4.37	6.25	12.87
site64	FI	Joensuu	5	3.63	10.24	22.81

site65	FI	Jyväskylä	5.31	6.76	8.47	19.75
site66	FI	Kajaani	5.66	2.22	2.5	13.08
site67	FI	Kemi	2.72	1.44	10.4	23.08
site68	FI	Kokkola	12.76	11.84	9.69	23.7
site69	FI	Kotka	14.69	9.09	11.65	15.1
site70	FI	Kouvola	43.95	20.62	16.74	25.01
site71	FI	Kuopio	10.92	8.68	10.23	25.87
site72	FI	Lahti	24.4	24	23.83	65.63
site73	FI	Lappeenranta	18.23	16.47	14.45	27.19
site74	FI	Mariehamn	0.69	0.67	0.62	0.45
site75	FI	Mikkeli	21.96	21.26	27.22	65.99
site76	FI	Oulu	18.03	12.72	12.35	26.99
site77	FI	Pietarsaari	1.76	2.75	2.04	4.9
site78	FI	Pori	14.63	16.29	18.64	28.23
site79	FI	Rauma	6.08	4.49	3.73	13.64
site80	FI	Rovaniemi	3.52	9.73	32.77	23.32
site81	FI	Salo	7.16	12.43	12.73	22.6
site82	FI	Savonlinna	6.82	4.79	3.11	5.93
site83	FI	Seinäjoki	15.32	14.2	12.43	19.38
site84	FI	Tampere	14.94	16.08	22.95	58.53
site85	FI	Turku	18.53	16.82	33.3	73.59
site86	FI	Vaasa	9.07	9.73	8.88	42.55
site87	FI	Vihti	15.67	18.14	16.53	33.12
site90	FR	Paris Seine Centre	18.05	32.26	33.61	29.92
site98	HR	Zagreb	26.71	25.48	25.01	45.03
site99	IS	Reykjavik Klettagarðar	20.36	40.38	34.92	52
site100	IT	Bozen	1.07	1.03	1.49	2.09
site101	IT	Milan	1.03		2.03	3.22
site102	LT	Kaunas	16.44	15.73	16.35	20.53
site103	LT	Klaipeda	15.09	11.18	10.49	13.57
site104	LT	Vilnius	26.54	23.35	23.64	55.34

site105	LV	Riga	24.02	33.77	40.93	49.76
site107	NL	Amsterdam	101.59	126.87	157.79	99.32
site108	NL	Eindhoven	69.95	63.11	138.12	96.54
site111	NL	Utrecht	147.69	72.16	88.23	185.82
site112	NO	Oslo	21.75	22.05	49.46	45.87
site113	PL	Krakow P	25.77	26.76	27.68	31.87
site114	PT	Almada	31.58	5.39	5.47	11.94
site115	PT	Lisbon	20.3	20.79	22.49	38.65
site116	PT	Porto	16.57	11.82	17.23	28.44
site119	RS	Novi Sad	7.84	13.32	29.5	44.29
site121	SE	Gävle	19.81	17.57	18.82	40.92
site122	SE	Sandviken	4.94	8.67	23	34.66
site123	SE	Stockholm (2)	21.66	20.66	19.75	37.33
site124	SE	Söderhamn	16.32	10.43	8.45	9.14
site126	SE	Uppsala	14.38	14.69	11.02	28.52
site127	SI	Domžale-Kamnik	9.25	5.12	8.56	7.27
site128	SI	Koper	3.12	2.46	4.39	5.55
site129	SI	Ljubljana	11.14	10.54	11.19	17.56
site130	SI	Maribor	9.34	9.33	8.53	8.85
site131	SI	Novo mesto	2.08	1.82	2.18	3.9
site132	SI	Velenje	8.99	2.46	2.16	3.44
site135	TR	Adana	29.83	26.54	25.11	46.79
site137	TR	Istanbul (II-VII)	19.9	21.67	16.36	24.68

Data from 2019 study

2019: cocaine

Download as CSV (/system/files/attachments/13776/WW-data-cocaine-2019.csv)

Cocaine residues in wastewater in selected European cities, 2019

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site1	AT	Graz	124.76	117.22	88.68	334.45

site2	AT	Hall-Wattens	173.19	183.09	191.67	246.61
site3	AT	Innsbruck	271.62	322.16	334.03	381.92
site4	AT	Kapfenberg	60.77	52.48	60.52	89.9
site7	AT	Mürzzuschlag	24.21	19.11	17.42	21.65
site8	AT	Purgstall	14.09	13.47	51.64	18.03
site9	AT	Region Millstattersee	36.65	31.64	62.64	79.96
site11	AT	Wasserverband Hofsteig	179.8	190.21	251.5	275.2
site14	BE	Antwerp Zuid	786.96	1389.77	977.75	1138.32
site15	BE	Boom	348.8	475.3	441.35	452.45
site17	BE	Brussels	462.05	383.44	567.22	511.16
site19	BE	Koksijde	60.48	72.04	85.71	100.86
site22	BE	Oostende	215.6	226.4	210.08	284.83
site24	CH	Basel	635.02	758.89	763.36	852.12
site25	CH	Berne	441	468.7	556.33	563.44
site26	CH	Geneva	622	700.3	781.58	819.72
site29	CH	St. Gallen Hofen	754.26	846.22	943.11	1222.28
site30	CH	Zurich	771.53	811.58	870.04	1059.27
site31	CY	Limassol	242.5	219.21	247.18	241.47
site32	CY	Nicosia	158.43	189.83	159.16	283.34
site33	CZ	Brno	28.18	27.97	36.9	38.46
site34	CZ	Budweis	14.75	14.86	19.24	17.76
site36	CZ	Ostrava	18.24	17.27	17.13	37.3
site37	CZ	Prague	388.38	422.86	513.32	652.27
site39	DE	Chemnitz	5.73	11.38	14.43	25.79
site40	DE	Dortmund	308.68	356.67	384.64	494.73
site41	DE	Dresden	20.92	20.85	22.78	43.68
site42	DE	Dülmen	79.55	63.82	121.08	199.7
site43	DE	Erfurt	39.38	36.93	43.57	76.79
site49	DE	Munich Gut_Grosslappen	173.06	195.46	236.58	302.07
site52	DE	Saarbrucken (2)	149.3	176.66	171.07	179.79
site54	DK	Copenhagen	387.78	189.6	465.14	704.98

site55	ES	Barcelona	877.05	667.17	694.4	725.32
site56	ES	Castellon	637.95	617.13	585.96	725.74
site57	ES	Madrid VdlV	323.25	648.17	431.18	436.67
site59	ES	Santiago	466.5	553.56	359.48	691.65
site60	ES	Valencia (3)	510.69	432.13	369.36	187.16
site61	FI	Espoo	30.71	40.03	45.37	68.74
site62	FI	Helsinki	55.14	50.3	63.03	117.78
site84	FI	Tampere	9.91	8.21	12.83	22.19
site85	FI	Turku	7.69	7.68	8.19	15.53
site88	FR	Bordeaux I	113.61	258.97	188.99	211.17
site90	FR	Paris Seine Centre	209.03	246.05	287.3	329.96
site93	GB	London	561.78	380.89	666.73	729.32
site94	GR	Athens	17.65	64.74	30.48	70.92
site95	GR	Eleusis	27.51	11.34	3.29	13.61
site98	HR	Zagreb	338.48	359.67	387.6	517.09
site99	IS	Reykjavik Klettagarðar	719.97	723.36	701.59	936.55
site100	IT	Bozen	368.97	320.73	597.78	431.33
site101	IT	Milan	237.42	225.28	216.79	273.73
site102	LT	Kaunas	46.54	41.36	52.14	103.62
site103	LT	Klaipeda	81.84	55.58	66.38	113.35
site104	LT	Vilnius	46.32	48.98	68.71	129.83
site105	LV	Riga	60.57	19.6	53.82	49.84
site107	NL	Amsterdam	898.05	687.74	825.14	1039.35
site108	NL	Eindhoven	575.01	427.28	499.02	669.88
site111	NL	Utrecht	352.02	524.64	468.04	565.26
site112	NO	Oslo	154.06	159.96	198.89	257.15
site113	PL	Krakow P	29.35	42.61	49.54	62.69
site114	PT	Almada	138.39	141.95	169.17	190.98
site115	PT	Lisbon	409.47	391.02	465.8	528.29
site116	PT	Porto	254.53	248.33	233.75	258.91
site121	SE	Gävle	73.64	95.32	78.52	121.64

site123	SE	Stockholm (2)	159.57	161.79	176.28	257.27
site126	SE	Uppsala	47.85	49.89	48.4	57.3
site127	SI	Domžale-Kamnik	194.88	225	274.22	356.09
site128	SI	Koper	447.89	510.01	585.02	697.03
site129	SI	Ljubljana	354.93	377.15	407.84	539.82
site130	SI	Maribor	207.15	181.38	214.55	299.82
site131	SI	Novo mesto	183.06	151.03	274.31	489.14
site132	SI	Velenje	110.27	163.83	112.71	181.96
site133	SK	Bratislava (2)	46.88	46.33	62.68	80.69
site134	SK	Piestany	28.45	27.5	21.61	57.05
site135	TR	Adana	4.15	3.43	2.25	2.66
site137	TR	Istanbul (II-VII)	37.3	31.01	33.75	41.35

2019: cannabis

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Cannabis residues in wastewater in selected European cities, 2019

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site1	AT	Graz	66.09	63.65	44.47	88.09
site2	AT	Hall-Wattens	61.5	64.16	89.81	57.6
site3	AT	Innsbruck	77.79	97.11	70.81	64.04
site4	AT	Kapfenberg	70.18	67.09	58.03	68.72
site7	AT	Mürzzuschlag	40.22	38.45	33.13	44.26
site8	AT	Purgstall	22.95	36.99	33.5	31.17
site9	AT	Region Millstattersee	30.74	45.19	32.24	24.62
site11	AT	Wasserverband Hofsteig	70.4	117.54	91.47	70.38
site24	CH	Basel	12.53	12.85	13.87	25.19
site25	CH	Berne	10.24	6.99	39.08	21.08
site26	CH	Geneva	204.36	194.14	220.68	253.32
site29	CH	St. Gallen Hofen	1.78	11.95	20.2	14.02

site30	CH	Zurich	104.39	107.79	157.63	157.55
site33	CZ	Brno	42.28	39.96	44.66	34.61
site34	CZ	Budweis	41.82	37.15	42.52	42.19
site36	CZ	Ostrava	62.8	43.17	45.12	63.4
site37	CZ	Prague	147.33	147.29	128.68	124.41
site55	ES	Barcelona	209.18	158.02	145.67	145.99
site56	ES	Castellon	84.02	82.72	79.17	82.08
site57	ES	Madrid VdlV	93.17	105.08	84.62	76.23
site59	ES	Santiago	174.93	115.27	157.64	79.41
site60	ES	Valencia (3)	96.57	313.49	235.63	82.11
site88	FR	Bordeaux I	139.73	105	179.4	140.98
site90	FR	Paris Seine Centre	93.5	122.86	104.63	98.9
site94	GR	Athens	37.45	46.95	72.42	32.17
site95	GR	Eleusis	28.71	10.21	26.34	38.2
site98	HR	Zagreb	150.03	204.73	211.8	179.93
site99	IS	Reykjavik Klettagarðar	105.5	67.5	71.55	69.21
site100	IT	Bozen	47.38	57.07	58.04	46.3
site101	IT	Milan	40.74	39.33	27.94	33.48
site107	NL	Amsterdam	336.88	225.31	219.53	220.47
site108	NL	Eindhoven	168.63	121.06	125	127.71
site111	NL	Utrecht	103.06	178.14	129.49	135.21
site113	PL	Krakow P	22.33	26.51	18.88	27.38
site114	PT	Almada	58.84	50.18	42.17	33.58
site115	PT	Lisbon	100.62	106.85	98.7	91.94
site116	PT	Porto	57.05	64.03	13.24	97.12
site121	SE	Gävle	223.2	197.68	151.81	143.69
site127	SI	Domžale-Kamnik	55.79	57.48	49.1	56.48
site128	SI	Koper	112.2	96.38	95.82	88.69
site129	SI	Ljubljana	93.35	106.61	95.02	98.01
site130	SI	Maribor	53.54	41.95	64.05	53.88
site131	SI	Novo mesto	131.62	83.41	82.84	49.69

site132	SI	Velenje	79.43	95.48	68.13	89.73
site133	SK	Bratislava (2)	32.3	31.75	40.63	30.42
site134	SK	Piestany	32.2	30	35.92	30.11
site135	TR	Adana	22.1	21.45	17.59	12.59
site137	TR	Istanbul (II-VII)	11.39	8.84	8.84	7.68

2019: amphetamine

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Amphetamine residues in wastewater in selected European cities, 2019

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site1	AT	Graz	20.63	21.05	16.67	58.36
site2	AT	Hall-Wattens	6.82	8.33	10.47	9.3
site3	AT	Innsbruck	14.16	19.76	18.16	24.8
site4	AT	Kapfenberg	25.25	22.59	31.69	47.92
site7	AT	Mürzzuschlag	7.94	8.58	8.75	12.92
site8	AT	Purgstall	11.11	16.87	15.41	14.25
site9	AT	Region Millstattersee	2.97	2.71	3.8	2.64
site11	AT	Wasserverband Hofsteig	15.39	17.53	19.49	19.4
site14	BE	Antwerp Zuid	231.83	408.22	246.91	260.81
site15	BE	Boom	146.39	197.25	167.95	201.75
site17	BE	Brussels	53.21	44.33	53.71	42.96
site19	BE	Koksijde	105.93	92.92	64.99	60.8
site22	BE	Oostende	275.58	235.48	246.65	286.84
site24	CH	Basel	34.15	36.48	35.9	34.38
site25	CH	Berne	43.76	54.93	62.1	58.15
site26	CH	Geneva	9.29	9.01	9.92	6.91
site29	CH	St. Gallen Hofen	47.67	72.24	75.64	62.98
site30	CH	Zurich	43.76	48.18	58.09	65.71
site31	CY	Limassol	4.67	4.22	4.87	4.67

site32	CY	Nicosia	2.01	2.52	1.76	2.3
site36	CZ	Ostrava	50.82	37.18	35.41	54.45
site37	CZ	Prague	76.32	81.01	88.09	81.86
site39	DE	Chemnitz	11.1	9.96	11.07	13.06
site40	DE	Dortmund	173.61	190.69	226.03	174.57
site41	DE	Dresden	32.01	36.63	47.95	44.11
site42	DE	Dülmen	144.19	139.46	191.69	215.63
site43	DE	Erfurt	40.31	38.27	45.08	44.84
site49	DE	Munich Gut_Grosslappen	21.54	21.28	24.77	29.82
site52	DE	Saarbrucken (2)	331.31	325.13	344.31	329.4
site54	DK	Copenhagen	71.25	32.22	62.05	69.78
site55	ES	Barcelona	20.62	38.49	26.29	46.25
site56	ES	Castellon	0	0	0	0
site57	ES	Madrid VdlV	0	0	0	0
site59	ES	Santiago	28.21	3.49	3.28	3.38
site60	ES	Valencia (3)	9.82	8.44	13.11	10.68
site61	FI	Espoo	112.94	127.55	126.25	150.43
site62	FI	Helsinki	199.61	186.21	191.35	248.6
site84	FI	Tampere	114.77	106.67	110.83	191.35
site85	FI	Turku	126.21	123.27	134.27	160.32
site88	FR	Bordeaux I	0	0	0	0
site90	FR	Paris Seine Centre	0	0	0	0
site98	HR	Zagreb	112.52	83.26	97.11	134.95
site99	IS	Reykjavik Klettagarðar	282.07	342.8	320.29	387.9
site100	IT	Bozen	1.63	1.56	2.59	2.31
site101	IT	Milan	3.48	3.45	3.14	4.01
site102	LT	Kaunas	28.67	24.95	56.63	79.79
site103	LT	Klaipeda	32.87	17.68	16.56	19.89
site104	LT	Vilnius	25.89	35.2	33.56	38.42
site105	LV	Riga	77.47	26.21	68.71	54.97
site107	NL	Amsterdam	99.19	161.94	140.5	212.06

site111	NL	Utrecht	121.06	168.32	137.64	165.8
site112	NO	Oslo	121.22	135.35	131.03	190.2
site113	PL	Krakow P	54.71	59.21	59.96	85.98
site114	PT	Almada	0.77	0.74	2.1	2.48
site115	PT	Lisbon	3.04	3.23	2.71	3.29
site116	PT	Porto	2.24	1.35	1.3	2.32
site121	SE	Gävle	472.97	399.84	425.18	668.64
site123	SE	Stockholm (2)	417.7	435.9	419	399.46
site126	SE	Uppsala	102.63	125.38	114.16	124.37
site127	SI	Domžale-Kamnik	2.19	2.71	3.56	4.07
site128	SI	Koper	3.91	6.02	14.89	5.53
site129	SI	Ljubljana	16.18	13.89	23.13	25.26
site130	SI	Maribor	13.75	8.33	13.53	24.98
site131	SI	Novo mesto	11.54	9.77	6.45	14.8
site132	SI	Velenje	57.06	86.44	52.1	85.14
site135	TR	Adana	1.2	0.56	0.43	0.27
site137	TR	Istanbul (II-VII)	3.56	3.33	3.42	3.42

2019: methamphetamine

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Methamphetamine residues in wastewater in selected European cities, 2019

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site1	AT	Graz	5.04	4.37	2.68	9.9
site2	AT	Hall-Wattens	3.61	4.17	3.52	3.28
site3	AT	Innsbruck	2.23	1.83	1.89	1.68
site4	AT	Kapfenberg	1.81	1.78	1.24	0.46
site7	AT	Mürzzuschlag	0	0	0	0
site8	AT	Purgstall	0.79	0.41	0.44	2.85
site9	AT	Region Millstattersee	0	0	0	0
site11	AT	Wasserverband	1.45	2.01	1.85	0.81

		Hofsteig				
site14	BE	Antwerp Zuid	24.09	41.61	24.46	22.99
site15	BE	Boom	9.3	13.97	12.02	14.98
site17	BE	Brussels	7.88	8.58	11.19	11.76
site19	BE	Koksijde	1.02	0.63	1.61	1.44
site22	BE	Oostende	1.33	1.28	1.31	3.23
site24	CH	Basel	31.66	40.56	34.34	49.42
site25	CH	Berne	18	17.96	22.51	22.89
site26	CH	Geneva	9.03	12.73	9.1	9.31
site29	CH	St. Gallen Hofen	12.34	17.08	7.95	6.24
site30	CH	Zurich	62.93	61.01	63.89	64.93
site31	CY	Limassol	54.4	51.94	53.76	52.89
site32	CY	Nicosia	11.08	19.79	14.76	12.43
site36	CZ	Ostrava	617.62	415.75	408.41	683.76
site37	CZ	Prague	693.19	667.55	712.56	745.14
site39	DE	Chemnitz	276.52	258.61	285.26	291.06
site40	DE	Dortmund	0	0	0	0
site41	DE	Dresden	151.48	153.56	166.42	221.2
site42	DE	Dülmen	0	0	0	0
site43	DE	Erfurt	226.64	241.78	254.04	284.38
site49	DE	Munich Gut_Grosslappen	6.92	6.83	7.33	8.97
site52	DE	Saarbrucken (2)	0	0	0	0
site54	DK	Copenhagen	19.68	8.81	20.99	21.73
site55	ES	Barcelona	82.27	96.67	127.05	127.69
site56	ES	Castellon	0	0	0	0
site57	ES	Madrid VdlV	6.34	8.86	6.3	4.82
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	9.21	7.96	8.78	6.75
site61	FI	Espoo	19.64	21.64	25.05	37.83
site62	FI	Helsinki	29.73	26.74	38.68	42.39
site84	FI	Tampere	6.9	6.59	5.43	6.69
site85	FI	Turku	13.51	10.98	10.16	14.47

site88	FR	Bordeaux I	0	0	0	0
site90	FR	Paris Seine Centre	0	0	0	0
site93	GB	London	62.06	40.33	64.65	59.76
site94	GR	Athens	6.82	16.45	7.5	9.07
site95	GR	Eleusis	0.94	0.41	0.82	0.59
site98	HR	Zagreb	0	0	0	0
site99	IS	Reykjavik Klettagarðar	41.61	35.19	26.76	27.5
site100	IT	Bozen	0	0	0	0
site101	IT	Milan	17.49	17.27	14.36	15.4
site102	LT	Kaunas	40.33	34.55	37.47	44.87
site103	LT	Klaipeda	7.74	6.33	8.59	6.87
site104	LT	Vilnius	28.8	29.24	41.25	39.04
site105	LV	Riga	34.47	10.93	31.66	31.26
site107	NL	Amsterdam	39.04	19.58	24.59	25.98
site111	NL	Utrecht	13.89	10.7	5.9	6.45
site112	NO	Oslo	68.79	81.6	78.62	95.86
site113	PL	Krakow P	4.84	2.12	2.16	2.08
site114	PT	Almada	0	0	0	0
site115	PT	Lisbon	0	0	0	0
site116	PT	Porto	0	0	0	0
site121	SE	Gävle	2.28	3.2	1.16	2.45
site123	SE	Stockholm (2)	13.98	13.82	12.8	14.66
site126	SE	Uppsala	1.5	1.73	2.33	2.3
site127	SI	Domžale-Kamnik	0.28	0.29	0.28	0.28
site128	SI	Koper	0.69	0.29	0.28	0.28
site129	SI	Ljubljana	6.24	43.9	38.47	11.5
site130	SI	Maribor	0.44	0.46	1.09	0.9
site131	SI	Novo mesto	0	0	0	0
site132	SI	Velenje	0	0	0	0
site137	TR	Istanbul (II-VII)	20.29	16	14.76	13.86

2019: MDMA/ecstasy

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MDMA/ecstasy residues in wastewater in selected European cities, 2019

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site1	AT	Graz	8.88	8.56	8.21	43.72
site2	AT	Hall-Wattens	5.5	5.13	3.23	10.94
site3	AT	Innsbruck	10.33	15.38	15.22	37.84
site4	AT	Kapfenberg	11.2	10.51	15.47	39.01
site7	AT	Mürzzuschlag	3.08	3.58	3.79	11.32
site8	AT	Purgstall	1.43	0.41	0.44	0.44
site9	AT	Region Millstattersee	4.44	2.9	4.4	7.3
site11	AT	Wasserverband Hofsteig	20.11	9.11	6.55	14.68
site14	BE	Antwerp Zuid	75.87	123.41	99.54	93.87
site15	BE	Boom	24.02	34.22	24.25	30.09
site17	BE	Brussels	14.6	12.55	16.69	46.87
site19	BE	Koksijde	13.76	8.18	5.67	7.41
site22	BE	Oostende	20.26	16.67	18.31	26.6
site24	CH	Basel	10.67	9.72	16.1	36.35
site25	CH	Berne	9.15	8.33	17.01	23.91
site26	CH	Geneva	16.93	17.65	23.48	58.83
site29	CH	St. Gallen Hofen	10.3	8.79	14.4	53.69
site30	CH	Zurich	18.69	16.98	19.96	53.63
site31	CY	Limassol	13.69	9.81	10.04	8.39
site32	CY	Nicosia	14.34	14.91	4.72	6.21
site36	CZ	Ostrava	18.35	9.11	6.44	27.85
site37	CZ	Prague	46.37	51.55	69.64	182.72
site39	DE	Chemnitz	1.79	1.78	3.36	7.96
site40	DE	Dortmund	7.15	14.38	9.43	31.56
site41	DE	Dresden	2.27	3.66	3.4	9.9

site42	DE	Dülmen	1.46	1.48	3.03	27.09
site43	DE	Erfurt	5.76	4	4.15	11.3
site49	DE	Munich Gut_Grosslappen	4.62	5.25	15.42	26.42
site52	DE	Saarbrucken (2)	7.67	7.17	8.55	19.5
site54	DK	Copenhagen	10.31	4.99	10.88	36.87
site55	ES	Barcelona	27.65	26.26	31.11	67.36
site56	ES	Castellon	6.77	4.89	5.37	6.46
site57	ES	Madrid VdlV	5.07	6.6	5.09	4.59
site59	ES	Santiago	7.95	7.58	22.56	23.29
site60	ES	Valencia (3)	25.93	10.78	11.62	5.98
site61	FI	Espoo	10.31	10.65	12.49	47.68
site62	FI	Helsinki	15.96	15.92	24.26	83.32
site84	FI	Tampere	10.4	11.09	10.47	59.73
site85	FI	Turku	6	6.21	12.62	33.26
site88	FR	Bordeaux I	3.39	20.51	4	30.47
site90	FR	Paris Seine Centre	2.23	2.35	13.31	36.16
site93	GB	London	30.05	23	39.88	67.16
site94	GR	Athens	3.39	6.26	3.33	7.09
site95	GR	Eleusis	2.46	0.33	0.8	0.68
site98	HR	Zagreb	20.34	12.45	13.39	30.13
site99	IS	Reykjavik Klettagarðar	20.88	19.78	29.26	45.83
site100	IT	Bozen	1.77	2.12	8.65	6.81
site101	IT	Milan	3.45	4.43	3.42	9.28
site102	LT	Kaunas	23.1	15.77	20.04	41.95
site103	LT	Klaipeda	34.38	23.07	20.35	55.11
site104	LT	Vilnius	18.38	13.88	22.16	87.23
site105	LV	Riga	30.35	9.64	15.43	11.31
site107	NL	Amsterdam	453.38	91.05	183.09	246.44
site108	NL	Eindhoven	105.5	73.01	90.15	125.22
site111	NL	Utrecht	74.96	78.65	100.62	202.05
site112	NO	Oslo	33.44	29.79	31.98	56.3

site113	PL	Krakow P	11.25	16.76	28.56	45.53
site114	PT	Almada	5.15	5.52	6.66	19.87
site115	PT	Lisbon	22.19	16.73	17.89	46.38
site116	PT	Porto	14.87	15.32	19.17	24.02
site121	SE	Gävle	16.7	15.35	9.31	19.59
site123	SE	Stockholm (2)	20.37	14.18	13.05	26.79
site126	SE	Uppsala	13.66	9.06	10.35	14.74
site127	SI	Domžale-Kamnik	5.6	3.7	4.03	6.46
site128	SI	Koper	4.6	3.26	2.4	11.78
site129	SI	Ljubljana	12.02	11.2	15.98	44.67
site130	SI	Maribor	12.58	11.57	9.48	23.63
site131	SI	Novo mesto	2.46	6.01	25.46	15.15
site132	SI	Velenje	5.01	8.54	4.51	10.43
site135	TR	Adana	18.72	14.64	12.65	7.35
site137	TR	Istanbul (II-VII)	30.81	26.97	24.66	32.65

Data from 2018 study

2018: cocaine

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Cocaine residues in wastewater in selected European cities, 2018

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site2	AT	Hall-Wattens	180.88	177.42	193.59	250.09
site3	AT	Innsbruck	277.43	309.18	366.45	421.89
site9	AT	Region Millstattersee	50.09	68.75	84.23	91.59
site11	AT	Wasserverband Hofsteig	134.63	139.53	162.76	276.42
site14	BE	Antwerp Zuid	669.67	750.51	805.87	945.86
site16	BE	Brugge	65.76	74.06	53.58	49.06
site17	BE	Brussels	345.77	391.83	455.31	562.4

site19	BE	Koksijde	54.56	83.29	91.26	109.59
site22	BE	Oostende	69.18	157.44	178.82	219.35
site24	CH	Basel	535.57	553.72	627.97	621.23
site25	CH	Berne	421.95	426.5	506.51	610.15
site26	CH	Geneva	509.39	493.4	673.24	836.39
site29	CH	St. Gallen Hofen	564.64	648.84	834.09	990.92
site30	CH	Zurich	709.06	764.95	773.04	1199.89
site33	CZ	Brno	18.87	21.91	33.63	31.36
site34	CZ	Budweis	15.86	20.02	26.81	19.42
site38	DE	Berlin (4)	308.93	312.14	299.54	392.23
site39	DE	Chemnitz	10.52	11.39	19.4	13.23
site40	DE	Dortmund	327.41	351.55	391.98	435.67
site41	DE	Dresden	26.2	26.78	29.38	58.06
site42	DE	Dülmen	46.99	58.36	87.96	157.86
site43	DE	Erfurt	42.92	40.39	46.67	61.61
site49	DE	Munich Gut_Grosslappen	163.36	158.87	183.11	264.2
site52	DE	Saarbrucken (2)	165.12	170.09	196.59	215.15
site54	DK	Copenhagen	361.86	336.52	446.2	649.9
site55	ES	Barcelona	703.9	793.61	822.13	988.29
site56	ES	Castellon	627.56	322.18	147.78	263.55
site57	ES	Madrid VdlV	239.1	275.93	298.99	312.54
site59	ES	Santiago	200.53	263.44	356.53	441.56
site60	ES	Valencia (3)	363.48	231.79	530.62	740.98
site61	FI	Espoo	23.05	21.4	23.91	38.7
site62	FI	Helsinki	39.48	44.46	49.59	89.77
site63	FI	Hämeenlinna	6.8	13.78	8.18	7.87
site64	FI	Joensuu	4.76	2.54	1.28	1.74
site65	FI	Jyväskylä	3.75	3.17	2.03	3.99
site66	FI	Kajaani	0.53	0.12	0.25	0.38
site67	FI	Kemi	0.92	1.71	1.47	0.38
site68	FI	Kokkola	0.3	0.25	0.28	0.78
site69	FI	Kotka	13.26	12.12	15.76	16.89

site70	FI	Kouvola	8.26	5.78	13.05	10.96
site71	FI	Kuopio	1.62	1.37	3.42	2.72
site72	FI	Lahti	26.49	43.79	31.24	63.14
site73	FI	Lappeenranta	2.83	3.51	1.73	1.86
site74	FI	Mariehamn	35.06	29.67	16.58	22.05
site75	FI	Mikkeli	2.79	3.2	2.87	2.45
site76	FI	Oulu	0.95	0.89	0.78	2.61
site78	FI	Pori	1.91	2.59	4.62	6.12
site80	FI	Rovaniemi	1.79	1.77	2.72	3.5
site82	FI	Savonlinna	0.98	0.82	0.54	0.73
site83	FI	Seinäjoki	1.52	0.84	0.93	0.51
site84	FI	Tampere	19.06	16.58	24.56	39.54
site85	FI	Turku	5.12	6.01	6.56	10.15
site86	FI	Vaasa	1.51	1.55	1.05	1.16
site88	FR	Bordeaux I	84.45	64.9	95.52	311.73
site90	FR	Paris Seine Centre	432.32	669.1	495.23	610
site91	FR	Paris South Suburbs	49.99	41.83	49.25	74.46
site92	GB	Bristol	607.03	740.41	887.35	991.02
site98	HR	Zagreb	216.96	224.54	284.82	178.51
site99	IS	Reykjavik Klettagarðar	486.34	374.88	439.54	614.47
site100	IT	Bozen	324.9	333.04	358.08	477.67
site101	IT	Milan	336.67	315.21	302.94	349.53
site102	LT	Kaunas	42.73	41.66	47.23	73.9
site103	LT	Klaipeda	33.64	40.68	44.72	91.79
site104	LT	Vilnius	28.95	33.62	52.29	74.9
site107	NL	Amsterdam	720.65	754.53	711.9	788.19
site108	NL	Eindhoven	357.02	247.81	410	428.78
site111	NL	Utrecht	400.51	437.84	360.81	357.79
site112	NO	Oslo	147.89	170.49	298.91	268.19
site114	PT	Almada	28.65	87.44	207.75	148.11

site115	PT	Lisbon	535.52	273.02	429.83	509.69
site116	PT	Porto	159.82	171.61	229.14	155.19
site127	SI	Domžale-Kamnik	122.48	78.22	165.78	293.17
site129	SI	Ljubljana	264.29	280.25		382.24
site130	SI	Maribor	58.9	99.73	52.73	134.81
site133	SK	Bratislava (2)	89.51	63.78	161.52	94.13
site134	SK	Piestany	11.38	10.14	8.75	64.17

2018: cannabis

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Cannabis residues in wastewater in selected European cities, 2018

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site2	AT	Hall-Wattens	70.95	67.73	71.21	63.57
site3	AT	Innsbruck	84.43	74.62	86.99	130.18
site9	AT	Region Millstattersee	35.39	61.06	38.66	36.6
site11	AT	Wasserverband Hofsteig	68.12	63.82	64.81	61.83
site33	CZ	Brno	27.41	35.26	52.84	32.36
site34	CZ	Budweis	52.88	30.47	21.82	18.47
site55	ES	Barcelona	177.52	167.33	201.01	228.82
site56	ES	Castellon	100.37	62.03	48.12	52.42
site57	ES	Madrid VdlV	50.96	61.49	53.6	44.08
site59	ES	Santiago	49.39	64.78	74.21	48.3
site60	ES	Valencia (3)	29.23	21.71	22.12	19.88
site88	FR	Bordeaux I	63.5	117.87	212.98	152.54
site90	FR	Paris Seine Centre	82.63	122.9	95.63	70.03
site91	FR	Paris South Suburbs	94.03	64.79	65.78	82.71
site94	GR	Athens	49.17	75.84	52.11	44.17
site98	HR	Zagreb	177.67	138.43	79.21	136.39

site99	IS	Reykjavik Klettagarðar	138.01	105.43	84.59	79
site100	IT	Bozen	40.99	71.76	43.52	40.12
site101	IT	Milan	29.86	23.54	26.87	23.95
site107	NL	Amsterdam	231.43	256.7	178.85	187.16
site108	NL	Eindhoven	136.36	90.54	185.99	135.55
site111	NL	Utrecht	99.36	130.61	83.68	95.62
site114	PT	Almada	33.78	68.94	112.56	83.35
site115	PT	Lisbon	141.09	64.88	124.08	105
site116	PT	Porto	51.73	46.62	24.42	33.68
site127	SI	Domžale-Kamnik	22.46	16.45	12.5	24
site129	SI	Ljubljana	38.75	39		37.85
site133	SK	Bratislava (2)	34.26	34.21	39.9	38.43
site134	SK	Piestany	27.85	28.52	18.18	11.55

2018: amphetamine

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Amphetamine residues in wastewater in selected European cities, 2018

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site2	AT	Hall-Wattens	4.18	5.22	5.24	6.76
site3	AT	Innsbruck	12.33	16.5	16.45	22.39
site9	AT	Region Millstattersee	7.42	7.12	7.47	6.78
site11	AT	Wasserverband Hofsteig	10.73	10.7	10.03	14.39
site14	BE	Antwerp Zuid	177.37	198.03	191.24	200.94
site16	BE	Brugge	56.69	58.94	75.5	46.37
site17	BE	Brussels	30.56	28.57	31.65	37.96
site19	BE	Koksijde	37.01	44.36	70.85	72.96
site22	BE	Oostende	69.79	209.64	201.13	215.09
site24	CH	Basel	32.63	29.17	48.78	28.76

site25	CH	Berne	32.85	37.74	44.02	48.08
site26	CH	Geneva	7.2	8.66	10.52	9.57
site29	CH	St. Gallen Hofen	35.16	51.97	60.14	69.51
site30	CH	Zurich	38.13	49.38	42.73	54.16
site31	CY	Limassol	8.96	6.84	8.39	7.09
site32	CY	Nicosia	4.26	5.5	4.88	5.09
site33	CZ	Brno	14.1	14.54	18.26	15.01
site34	CZ	Budweis	20.71	16.54	16.37	16.26
site38	DE	Berlin (4)	142.2	135.39	122.16	154.79
site39	DE	Chemnitz	18.56	19.53	27.28	18.53
site40	DE	Dortmund	110.41	143.21	135.84	144.78
site41	DE	Dresden	28.69	25.74	23.45	36.05
site42	DE	Dülmen	101.49	85.5	109.06	120.73
site43	DE	Erfurt	48.53	31.79	36.11	41.94
site49	DE	Munich Gut_Grosslappen	2.88	4.74	2.54	14.35
site52	DE	Saarbrucken (2)	373.64	417.07	423.98	446.1
site54	DK	Copenhagen	55.32	56.16	56.26	67
site55	ES	Barcelona	49.49	37.79	34.06	41.08
site56	ES	Castellon	0	0	0	0
site57	ES	Madrid VdlV	0	0	0	0
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	12.89	12.4	13.39	15.5
site61	FI	Espoo	79.69	74.18	85.23	112.17
site62	FI	Helsinki	129.41	142.08	143.59	178.24
site63	FI	Hämeenlinna	80.38	94.05	91.39	105.79
site64	FI	Joensuu	63.62	37.08	45.47	38.51
site65	FI	Jyväskylä	103.17	83.51	101.87	120.79
site66	FI	Kajaani	32.79	42.24	35.05	33.94
site67	FI	Kemi	138.48	107.05	87.69	90.91
site68	FI	Kokkola	24.27	22.39	22.15	27.83
site69	FI	Kotka	110.82	109.33	105.93	112.26
site70	FI	Kouvola	174.18	144.52	140.93	182.81

site71	FI	Kuopio	116.36	84.95	117.8	84.06
site72	FI	Lahti	139.85	141.34	148.45	182.6
site73	FI	Lappeenranta	54.08	50.97	73.74	98.31
site74	FI	Mariehamn	58.64	49.01	60.1	73.28
site75	FI	Mikkeli	90.55	109.48	112.06	118.2
site76	FI	Oulu	81.21	74.63	74.49	75.47
site78	FI	Pori	31.83	29.55	40.67	43.77
site80	FI	Rovaniemi	105.15	122.37	117.74	147.07
site82	FI	Savonlinna	21.95	20.97	25.88	25.25
site83	FI	Seinäjoki	61.49	54.22	58.43	80.53
site84	FI	Tampere	54.42	59.17	63.99	83.45
site85	FI	Turku	61.64	60.63	68.47	70.69
site86	FI	Vaasa	64.89	59.67	65.78	70.13
site88	FR	Bordeaux I	0	0	0	0
site90	FR	Paris Seine Centre	0	0	0	0
site91	FR	Paris South Suburbs	0	0	0	0
site94	GR	Athens	8.82	5.09	9.68	11.15
site98	HR	Zagreb	64.92	86.12	117.49	78.23
site99	IS	Reykjavik Klettagarðar	209.94	178.1	213.18	230.02
site100	IT	Bozen	1.76	1.74	2.32	2.32
site101	IT	Milan	0	0	0	0
site102	LT	Kaunas	10.92	24.46	13.75	11.13
site103	LT	Klaipeda	36.08	12.01	14.83	19.52
site104	LT	Vilnius	14.98	14.28	18.73	17.8
site107	NL	Amsterdam	131.83	142.98	103.23	105.23
site112	NO	Oslo	172.84	212.64	229.21	205.65
site114	PT	Almada	0.96	0.93	2.89	3.46
site115	PT	Lisbon	6.07	1.69	5.34	6.13
site116	PT	Porto	1.39	1.59	1.69	1.71
site127	SI	Domžale-Kamnik	7.05	4.21	4.74	7.15

site129	SI	Ljubljana	19.67	18.34		25.05
site130	SI	Maribor	0.78	1.14	1.37	10.94
site133	SK	Bratislava (2)	17.13	15.27	24.73	18.23
site134	SK	Piestany	41.92	32.33	11.11	23.42
site136	TR	Istanbul I	4.44	3.79	3.64	5.84

2018: methamphetamine

Download as CSV (/system/files/attachments/13776/WW-data-methamphetamine-2018.csv)

Methamphetamine residues in wastewater in selected European cities, 2018

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site2	AT	Hall-Wattens	1.81	1	2.14	1.95
site3	AT	Innsbruck	2.22	2.35	2.12	1.79
site9	AT	Region Millstattersee	0	0	0	0
site11	AT	Wasserverband Hofsteig	0.59	1.5	1.48	1.09
site14	BE	Antwerp Zuid	17.17	16.9	14.61	17.35
site16	BE	Brugge	0	0	0	0
site17	BE	Brussels	6.63	7.37	5.92	6.35
site19	BE	Koksijde	0	0	0	0
site22	BE	Oostende	0	0	0	0
site31	CY	Limassol	51.36	47.17	47.18	40.91
site32	CY	Nicosia	22.27	25.47	30.77	37.05
site33	CZ	Brno	104.67	124.9	140.04	110.09
site34	CZ	Budweis	116.77	94.23	91.8	92.69
site38	DE	Berlin (4)	17.01	15.18	16.08	18.23
site39	DE	Chemnitz	187.8	175.23	266.09	191.7
site40	DE	Dortmund	5.87	3.02	2.3	1.87
site41	DE	Dresden	175.96	175.17	162.17	238.6
site42	DE	Dülmen	0	0	0	0
site43	DE	Erfurt	237.69	188.67	208.84	241

site49	DE	Munich Gut_Grosslappen	4.45	5.02	5.33	8.24
site52	DE	Saarbrucken (2)	2.64	1.87	2.98	2.42
site54	DK	Copenhagen	17.51	11.55	11.6	21.03
site55	ES	Barcelona	46.19	55.22	48.36	50.45
site56	ES	Castellon	0	0	0	0
site57	ES	Madrid VdlV	6.87	6.49	7.46	6.75
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	0.97	0.97	0.77	0.81
site61	FI	Espoo	8.86	6.59	7.38	9.46
site62	FI	Helsinki	19.11	18.52	18.51	22.21
site63	FI	Hämeenlinna	4.51	5.91	5.72	5.29
site64	FI	Joensuu	2.71	1.66	1.87	2.84
site65	FI	Jyväskylä	47.79	39.4	55.32	54.31
site66	FI	Kajaani	1.8	2.54	2.96	2.43
site67	FI	Kemi	3.16	2.84	2.05	2.44
site68	FI	Kokkola	1.3	1.39	1.58	2.05
site69	FI	Kotka	4.7	4.5	4.08	5.06
site70	FI	Kouvola	11.01	6.87	8.41	11.54
site71	FI	Kuopio	14.95	13.02	27.02	13.81
site72	FI	Lahti	27.55	19.25	25.51	28.46
site73	FI	Lappeenranta	5.73	8.59	9.79	9.37
site74	FI	Mariehamn	0.83	1.13	1.48	0.94
site75	FI	Mikkeli	7.16	7.48	5.51	6.37
site76	FI	Oulu	3.3	2.99	2.67	2.45
site78	FI	Pori	3.73	3.79	4.01	4.03
site80	FI	Rovaniemi	3.51	3.87	4.89	6.49
site82	FI	Savonlinna	2.12	2.21	2.31	2.05
site83	FI	Seinäjoki	4.49	3.85	4.38	4.1
site84	FI	Tampere	23.46	20.8	25.03	27.46
site85	FI	Turku	5.79	6.65	6.38	5.79
site86	FI	Vaasa	19.68	20.77	23.97	21.24
site88	FR	Bordeaux I	0	0	0	0

site90	FR	Paris Seine Centre	0	0	0	0
site91	FR	Paris South Suburbs	0	0	0	0
site92	GB	Bristol	7.19	8.89	8.8	8.51
site98	HR	Zagreb	0	0	0	0
site99	IS	Reykjavik Klettagarðar	38.15	30.43	39.12	31.38
site100	IT	Bozen	1	1.27	1.07	0.97
site101	IT	Milan	10.61	10.66	10.61	12.41
site102	LT	Kaunas	40.48	41.34	46.72	49.16
site103	LT	Klaipeda	7.14	4.7	7.11	6.58
site104	LT	Vilnius	29.73	29.96	33.76	38.53
site107	NL	Amsterdam	19.43	25.98	17.93	26.19
site108	NL	Eindhoven	5.04	1.62	2.35	2.41
site111	NL	Utrecht	0	0	0	0
site112	NO	Oslo	24.77	29.97	50.52	45.33
site114	PT	Almada	0.08	0.08	0.39	5.34
site115	PT	Lisbon	2.02	0.34	1.54	2.01
site116	PT	Porto	0.15	0.14	0.48	0.48
site127	SI	Domžale-Kamnik	0	0	0	0
site129	SI	Ljubljana	3.49	3.05		2.38
site130	SI	Maribor	0	0	0	0
site133	SK	Bratislava (2)	129.17	115.42	176.38	139.7
site134	SK	Piestany	122.77	126.77	37.03	93.04
site136	TR	Istanbul I	8.25	6.79	10.06	47.05

2018: MDMA/ecstasy

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MDMA/ecstasy residues in wastewater in selected European cities, 2018

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site2	AT	Hall-Wattens	4.81	4.83	2.83	12.09

site3	AT	Innsbruck	15.83	13.57	13.1	43.49
site9	AT	Region Millstattersee	2.5	3.76	5.8	8.25
site11	AT	Wasserverband Hofsteig	3.45	5.03	7.84	14.3
site16	BE	Brugge	6.75	5.95	4.53	3.47
site17	BE	Brussels	11.11	13.84	15.35	37.66
site19	BE	Koksijde	2.44	3.21	10.73	6.93
site22	BE	Oostende	5.69	12.98	14.96	15.52
site24	CH	Basel	22.07	10.27	13.48	25.98
site25	CH	Berne	17.23	9.18	20.15	51.89
site26	CH	Geneva	15.15	21.1	31.3	70.43
site29	CH	St. Gallen Hofen	12.66	25.48	41.84	67.42
site30	CH	Zurich	24.67	22.82	31.27	95.78
site31	CY	Limassol	8.63	6.51	7.8	9.49
site32	CY	Nicosia	2.93	3.88	3.42	4.94
site33	CZ	Brno	12.91	10.16	15.61	14.01
site34	CZ	Budweis	9.25	6.53	8.54	6.32
site38	DE	Berlin (4)	65.81	50.84	31.91	42.68
site39	DE	Chemnitz	6.5	16.55	13.33	12.86
site40	DE	Dortmund	18.21	15.08	13.53	21.1
site41	DE	Dresden	8.99	8.12	8.48	23.92
site42	DE	Dülmen	7.05	5.89	12.46	17.01
site43	DE	Erfurt	11.88	9.12	16.35	22.52
site49	DE	Munich Gut_Grosslappen	10.73	10.03	14.98	32.43
site52	DE	Saarbrucken (2)	21.33	35.58	24.15	41.66
site54	DK	Copenhagen	10.92	9.43	8.85	32.72
site55	ES	Barcelona	25.08	22.04	25.65	68.33
site56	ES	Castellon	1.35	1.1	0.95	4.07
site57	ES	Madrid VdlV	4.38	3.47	4.61	18.21
site59	ES	Santiago	6.65	7.73	12.44	22.15
site60	ES	Valencia (3)	6.66	4.65	4.57	10.19

site61	FI	Espoo	10.1	10.6	11.04	30.87
site62	FI	Helsinki	17.85	18.45	18.86	59.79
site63	FI	Hämeenlinna	5.83	3.53	4.3	13.93
site64	FI	Joensuu	7.45	10.24	17.26	23.29
site65	FI	Jyväskylä	14.99	13.57	16.22	46.76
site66	FI	Kajaani	2.7	2.96	4.49	4.26
site67	FI	Kemi	3.83	4.89	2.1	14.1
site68	FI	Kokkola	3.9	3.02	2.74	3.61
site69	FI	Kotka	8.04	8.31	8.92	9.23
site70	FI	Kouvola	7.49	6.56	9.58	17.91
site71	FI	Kuopio	3.87	4.88	17.57	9.11
site72	FI	Lahti	11.96	10.28	13.32	25.02
site73	FI	Lappeenranta	6.82	7.81	12.26	31.36
site74	FI	Mariehamn	27.51	30.31	14.12	20.4
site75	FI	Mikkeli	15.4	19.76	18.5	32.56
site76	FI	Oulu	10.02	10.33	14.38	23.21
site78	FI	Pori	8.9	11.92	13.78	18.94
site80	FI	Rovaniemi	32.63	25.82	21.94	30.53
site82	FI	Savonlinna	2.51	1.42	1.89	7.53
site83	FI	Seinäjoki	10.26	14.8	22.57	37.56
site84	FI	Tampere	10.06	13.86	13.76	35.58
site85	FI	Turku	10.19	7.12	9.21	26.87
site86	FI	Vaasa	6	3.99	3.96	14.31
site88	FR	Bordeaux I	4.46	4.48	4.23	22.61
site90	FR	Paris Seine Centre	3.48	3.42	3.29	52.5
site91	FR	Paris South Suburbs	0	0	0	0
site94	GR	Athens	3.44	3.38	2.19	3.49
site98	HR	Zagreb	17.94	18.51	17.8	29.08
site99	IS	Reykjavik Klettagarðar	36.58	31.72	25.49	46.59
site100	IT	Bozen	1.97	1.97	4.6	6.56
site101	IT	Milan	2.33	1.9	3.28	6.34

site102	LT	Kaunas	10.81	9.28	8.54	18.37
site103	LT	Klaipeda	10.64	10.08	15.63	41.32
site104	LT	Vilnius	10.35	10.81	10.54	43.71
site107	NL	Amsterdam	147.15	147.4	92.77	103.52
site111	NL	Utrecht	130.88	86.09	54.29	76.64
site112	NO	Oslo	11.66	6.82	46.19	41.44
site114	PT	Almada	0.51	1.02	22.35	15.29
site115	PT	Lisbon	35.4	25.68	23.75	51.19
site116	PT	Porto	6.81	8.96	22.16	14.92
site127	SI	Domžale-Kamnik	3.36	2.85	5.58	14.37
site129	SI	Ljubljana	14.92	15.58		71.65
site130	SI	Maribor	2.51	3.65	1.44	11.63
site133	SK	Bratislava (2)	7.23	5.1	23.49	8.4
site134	SK	Piestany	1.98	2.22	1.38	3.53

Data from 2017 study

2017: Cocaine

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Cocaine residues in wastewater in selected European cities, 2017

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site3	AT	Innsbruck	203.04	191.67	222.07	282.03
site14	BE	Antwerp Zuid	708.02	666.11	873.98	936.86
site15	BE	Boom	321.86	419.76	574.03	477.69
site17	BE	Brussels	322.25	310.53	318.92	359.61
site19	BE	Koksijde	51.09	42.59	59.99	98.83
site20	BE	Merchtem	199.19	276.24	253.37	257.75
site22	BE	Oostende	120.09	116.1	133.8	151.85
site23	BE	Ruisbroek (Puurs)	178.65	272.27	298.06	247.73
site24	CH	Basel	364.94	443.37		637.56
site25	CH	Berne	417.94	324.55	556.96	713.02

site26	CH	Geneva	566.85	686.84	834.05	1171.17
site29	CH	St. Gallen Hofen	575.17	703.72	866.97	1180.98
site30	CH	Zurich	640.01	720.91	837.67	1318.64
site33	CZ	Brno	13.34	18.39	21.77	55.86
site34	CZ	Budweis	9.85	8.04	8.83	10.04
site38	DE	Berlin (4)	258.41	268.1	249.69	246.47
site39	DE	Chemnitz	18.05	26.63	17.47	26.16
site40	DE	Dortmund	354.22	402.17	447.1	520.19
site41	DE	Dresden	16.94	16.82	19.61	23.21
site42	DE	Dülmen	39.35	84.25	180.71	201.3
site43	DE	Erfurt	35.38	37.81	50.65	78.38
site44	DE	Frankfurt (3)	391.25	387.52	417.96	578.86
site45	DE	Hamburg (2)	328.03	340.15	336.6	543.89
site46	DE	Hannover (2)	293.55	232.08	362.28	325.18
site47	DE	Magdeburg	109.78	107.34	125.95	164.76
site48	DE	Mainz	111.34	152.77	135.43	153.13
site49	DE	Munich Gut_Grosslappen	108.77	103.93	131.92	180.36
site50	DE	Nuremberg	10.42	7.88	23.52	25.6
site51	DE	Rostock	100.57	160.1	139.99	164.86
site52	DE	Saarbrucken (2)	155.94	242.79	198.33	211.24
site53	DE	Stuttgart	182.48	190.59	310.23	247.84
site55	ES	Barcelona	709.93	928.31	980.81	1244.07
site56	ES	Castellon	268.89	252.54	178.34	436.94
site57	ES	Madrid VdlV	378.89	344.73	376.79	581.84
site59	ES	Santiago	240.65	277.97	304.47	517.31
site60	ES	Valencia (3)	349.45	368.32	394.79	527.03
site61	FI	Espoo	13.38	13.45	14.88	23.7
site62	FI	Helsinki	20.12	18.73	24.83	42
site84	FI	Tampere	11.92	14.5	14.37	23.05
site85	FI	Turku	3.41	3.31	4.32	4.01
site88	FR	Bordeaux I	264.43	153.25	186.4	104.01
site89	FR	Fort-de-France P	401.37		344.16	471.89

site90	FR	Paris Seine Centre	209.54	239.56	345.48	620.5
site91	FR	Paris South Suburbs	71.36	41.59	158.89	137.81
site92	GB	Bristol	415.86	677.64	771.99	1161.31
site94	GR	Athens		41.29	36.61	
site98	HR	Zagreb	175.5	205.44	218.3	301.23
site99	IS	Reykjavik Klettagarðar	304.44	447.13	499.93	485.86
site101	IT	Milan	316.45	298.14	330.22	416.65
site104	LT	Vilnius	23.86	21.79	62.41	22.31
site107	NL	Amsterdam	627.82	612.76	606.09	913.45
site108	NL	Eindhoven	365.15	347.45	348.1	435.74
site109	NL	Nieuwegein Ijssel.	253.88	251.34	305.67	377.56
site110	NL	Oudewater	158.29	161.67	194.66	298.93
site111	NL	Utrecht	225.37	234.83	252.46	316.42
site112	NO	Oslo	68.3	97.43	91.44	91.44
site114	PT	Almada	90.06	108.68	76.62	86.24
site115	PT	Lisbon	274.36	266.78	286.82	282.26
site116	PT	Porto	137.86	146.48	181.4	187.41
site129	SI	Ljubljana	449.1	459.86	393.18	597.42
site133	SK	Bratislava (2)	72.53	81.81	85.31	80.09
site134	SK	Piestany	3.86	3.69	6	7.9

2017: amphetamine

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Amphetamine residues in wastewater in selected European cities, 2017

SiteID	country	city	7	Thursday	Friday	Saturday	Su
site3	AT	Innsbruck	13.07	9.57	12.38	19.93	22
site14	BE	Antwerp Zuid	196.01	227.17	192.66	225.56	20
site15	BE	Boom	182.86	206.19	225.29	204.36	18

site17	BE	Brussels	60.66	38.61	42.64	42.12	46
site19	BE	Koksijde	39.59	40.54	48.48	44.73	41
site20	BE	Merchtem	22.72	30.05	31.14	34.17	25
site22	BE	Oostende	197.57	222.65	228.42	259.12	26
site23	BE	Ruisbroek (Puurs)	52.05	60.41	82.15	51.6	49
site24	CH	Basel	26.81	34.3		30.62	40
site25	CH	Berne	66.85	38.19	55.54	53.96	57
site26	CH	Geneva	16.2	20.89	14.67	12.74	13
site29	CH	St. Gallen Hofen	39.52	45.34	45.32	49.49	48
site30	CH	Zurich	44.83	43.18	42.01	48.27	54
site31	CY	Limassol	8.63	8.91	8.36	10.49	10
site32	CY	Nicosia	4.03	4.75	5.03	4.51	4.5
site33	CZ	Brno	11.26	7.56	7.19	11.87	10
site34	CZ	Budweis	10.79	10.29	6.48	7.22	7.6
site38	DE	Berlin (4)	111.68	122.45	110.59	98.09	18
site39	DE	Chemnitz	0	0	0	0	0
site40	DE	Dortmund	131.8	150.1	156.78	171.61	26
site41	DE	Dresden	23.57	19.66	20.2	22.7	30
site42	DE	Dülmen	113.44	130.47	172.8	168	12
site43	DE	Erfurt	0	0	0	0	0
site44	DE	Frankfurt (3)	82.41	78.42	90.3	93.59	88
site45	DE	Hamburg (2)	57.86	61.12	69.71	83.85	83
site46	DE	Hannover (2)	83.08	72.61	93.89	82.04	99
site47	DE	Magdeburg	90.71	83.85	99.18	106.85	11
site48	DE	Mainz	232.65	254.61	216.38	203.89	21
site49	DE	Munich Gut_Grosslappen	21.08	17.04	22.22	33.2	32
site50	DE	Nuremberg	32.34	26.66	47.29	52.54	51
site51	DE	Rostock	125.78	176.62	172.55	159.05	15
site52	DE	Saarbrucken (2)	227.01	285.65	239.11	254.16	23
site53	DE	Stuttgart	72.65	63.96	78.91	65.79	
site55	ES	Barcelona	32.98	38.52	46.07	49.28	56

site56	ES	Castellon	0	0	0	0	0
site57	ES	Madrid VdlV	0	0	0	0	0
site59	ES	Santiago	3.98	4.93	5.82	4.64	3.8
site60	ES	Valencia (3)	23.48	17.91	21.55	23.1	25
site61	FI	Espoo	32.35	33.76	38.9	46.36	49
site62	FI	Helsinki	38.06	42.87	43.71	58.36	63
site84	FI	Tampere	37.23	38.11	41.08	55.86	47
site85	FI	Turku	45.71	41.98	67.94	52.67	10
site88	FR	Bordeaux I	0	0	0	0	0
site89	FR	Fort-de-France P	0	0	0	0	0
site90	FR	Paris Seine Centre	0	0	0	0	0
site91	FR	Paris South Suburbs	0	0	0	0	0
site92	GB	Bristol	41.82	59.27	60.5	52.37	51
site94	GR	Athens		2.25	1.98		0.9
site98	HR	Zagreb	39.29	51.47	55.01	70.14	67
site99	IS	Reykjavik Klettagarðar	144.55	173.31	158.96	177.58	20
site101	IT	Milan	0	0	0	0	0
site104	LT	Vilnius	13.63	12.26	10.78	13.76	12
site107	NL	Amsterdam	136.43	98.22	164.3	106.45	13
site108	NL	Eindhoven	168.7	168.5	200.79	181.54	27
site109	NL	Nieuwegein Ijssel.	87.04	69.33	84.04	66.12	86
site110	NL	Oudewater	208.53	218.59	232.41	245.68	24
site111	NL	Utrecht	83.02	67.38	67.11	81.52	78
site112	NO	Oslo	56.17	81.79	45.07	45.07	45
site113	PL	Krakow P	31.38	16.86			18
site114	PT	Almada		1.62	1.31	0.66	0.6
site115	PT	Lisbon	3.74	2.31	2.34	4.18	3.4
site116	PT	Porto	0	0	0	0	0
site129	SI	Ljubljana	33.76	41.01	33.31	30.17	35
site133	SK	Bratislava (2)	7.85	6.11	15.18	10.05	14

site134	SK	Piestany	1.07	1.02	1.08	5.03	1.(

2017: methamphetamine

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Methamphetamine residues in wastewater in selected European cities, 2017

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site3	AT	Innsbruck	2.35	2.71	2.58	5.05
site14	BE	Antwerp Zuid	22.17	18.53	26.19	24.53
site15	BE	Boom	0	0	0	0
site17	BE	Brussels	5.62	6.61	7.21	6.77
site19	BE	Koksijde	0	0	0	0
site20	BE	Merchtem	0	0	0	0
site22	BE	Oostende	0	0	0	0
site23	BE	Ruisbroek (Puurs)	0	0	0	0
site24	CH	Basel	30.23	42.87		35.83
site25	CH	Berne	23.36	15.26	24.15	29.13
site26	CH	Geneva	18.17	17.72	19.69	21.34
site29	CH	St. Gallen Hofen	8.78	5.02	6.57	13.49
site30	CH	Zurich	59.22	54.88	57.78	68.43
site31	CY	Limassol	83.02	73.49	64.62	107.71
site32	CY	Nicosia	44.13	49.24	43.89	40.93
site33	CZ	Brno	166.82	159.41	169.01	271.63
site34	CZ	Budweis	211.16	214.57	189.33	200.79
site38	DE	Berlin (4)	17.15	22.52	14.66	12.85
site39	DE	Chemnitz	221.41	330.39	223.8	223.9
site40	DE	Dortmund	0	0	0	0
site41	DE	Dresden	191.77	175.81	199.62	159.42
site42	DE	Dülmen	0	0	0	0
site43	DE	Erfurt	180.37	238.9	217.01	241.13
site44	DE	Frankfurt (3)	7.69	8.42	8.8	10.13

site45	DE	Hamburg (2)	3.52	3.71	4.56	3.39
site46	DE	Hannover (2)	2.95	1.7	1.42	0.94
site47	DE	Magdeburg	87.02	73.42	85.28	93.91
site48	DE	Mainz	3.55	3.24	3.21	0.99
site49	DE	Munich Gut_Grosslappen	9.11	7.3	6.87	8.97
site50	DE	Nuremberg	75.19	66.59	108.38	117.42
site51	DE	Rostock	2.8	3.65	1.03	2.43
site52	DE	Saarbrucken (2)	0	0	0	0
site53	DE	Stuttgart	5.82	5.49	6.65	6.36
site55	ES	Barcelona	49.68	48.82	48.19	51.35
site56	ES	Castellon	0	0	0	0
site57	ES	Madrid VdlV	9.97	11.35	10.28	11.13
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	6.93	6.64	7.22	6.48
site61	FI	Espoo	48.44	46.77	49.6	42.41
site62	FI	Helsinki	42.05	47.19	51.69	52.68
site84	FI	Tampere	27.7	24.54	18.66	29.71
site85	FI	Turku	12.14	4.28	20.44	23.99
site88	FR	Bordeaux I	0	0	0	0
site89	FR	Fort-de-France P	0	0	0	0
site90	FR	Paris Seine Centre	0	0	0	0
site91	FR	Paris South Suburbs	0	0	0	0
site92	GB	Bristol	0.12	0.11	0.1	2.14
site94	GR	Athens		3.99	3.22	
site98	HR	Zagreb	0	0	0	0
site101	IT	Milan	8.7	8.28	10.78	11.08
site104	LT	Vilnius	37.92	39.3	41.68	37.74
site107	NL	Amsterdam	15.06	13.18	11.74	16.62
site108	NL	Eindhoven	0	0	0	0
site109	NL	Nieuwegein Ijssel.	0	0	0	0

site110	NL	Oudewater	0	0	0	0
site111	NL	Utrecht	0	0	0	0
site112	NO	Oslo	79.47	118.63	65.74	65.74
site113	PL	Krakow P	0.33	0.45		
site114	PT	Almada	0.62	0.67	0.59	1.99
site115	PT	Lisbon	0	0	0	0
site116	PT	Porto	0.27	0.31	0.41	0.81
site129	SI	Ljubljana	0	0	0	0
site133	SK	Bratislava (2)	106.21	82.64	197.36	174.42
site134	SK	Piestany	73.72	63.76	84.68	78.99

2017: MDMA/ecstasy

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MDMA/ecstasy residues in wastewater in selected European cities, 2017

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site3	AT	Innsbruck	10.38	11.2	11.78	40.01
site14	BE	Antwerp Zuid	76.43	59.08	84.93	142.95
site15	BE	Boom	17.63	15.44	14.44	22.66
site17	BE	Brussels	14.71	17.54	13.3	13.05
site19	BE	Koksijde	10.29	7.93	7.66	10.95
site20	BE	Merchtem	6.13	11.08	7.15	5.63
site22	BE	Oostende	13.74	13.35	10.38	13.19
site23	BE	Ruisbroek (Puurs)	10.77	11.42	11.06	8.68
site24	CH	Basel	10.28	10.6		36.11
site25	CH	Berne	14.05	9.89	18.64	49.28
site26	CH	Geneva	18.05	22.48	33.33	76.78
site29	CH	St. Gallen Hofen	7.48	8.97	23.02	41.28
site30	CH	Zurich	34.82	59.11	31.31	85.8
site31	CY	Limassol	4.57	4.14	4.03	11.87
site32	CY	Nicosia	4.22	4.01	3.52	3.77

site33	CZ	Brno	5.72	7.77	11.5	76.11
site34	CZ	Budweis	4.69	4.83	10.6	9.1
site38	DE	Berlin (4)	46.21	30.03	21.38	21.67
site39	DE	Chemnitz	3.54	7.44	5.03	14.56
site40	DE	Dortmund	9.45	10.91	19.25	21.93
site41	DE	Dresden	4.17	4.15	4.75	10.85
site42	DE	Dülmen	2.64	7.08	24.62	22.71
site43	DE	Erfurt	3.69	3.62	4.72	11.88
site44	DE	Frankfurt (3)	41.57	14.23	11.06	22.16
site45	DE	Hamburg (2)	16.02	12.53	15.46	47.56
site46	DE	Hannover (2)	17.09	14.41	15.98	18.61
site47	DE	Magdeburg	13.22	12.19	10.97	32.3
site48	DE	Mainz	12.75	41.58	25.45	35.02
site49	DE	Munich Gut_Grosslappen	7.29	7.06	8.25	34.55
site50	DE	Nuremberg	4.91	3.29	6.58	20.61
site51	DE	Rostock	11.28	15.76	10.11	19.7
site52	DE	Saarbrucken (2)	15.05	33.53	24.15	20.9
site53	DE	Stuttgart	9.13	8.82	41.49	32.49
site55	ES	Barcelona	25.25	36.66	24.2	42.27
site56	ES	Castellon	5.87	3.51	2.11	18.26
site57	ES	Madrid VdlV	7.28	6.81	8.2	18.01
site59	ES	Santiago	6.21	7.65	11.93	18.85
site61	FI	Espoo	10.94	9.05	9.3	30.81
site62	FI	Helsinki	9.85	9.59	11.46	36.28
site84	FI	Tampere	25.37	24.33	30.27	59.1
site85	FI	Turku	8.56	8.13	14.53	9.3
site88	FR	Bordeaux I	16.19	2.94	2.69	2.52
site89	FR	Fort-de-France P	0	0	0	0
site90	FR	Paris Seine Centre	22.29	3.11	22.81	69.59
site91	FR	Paris South Suburbs	1.91	1.62	11.83	1.65
site92	GB	Bristol	11.88	15.48	21.49	68.94

site94	GR	Athens		1.8	1.63	
site98	HR	Zagreb	14.41	15.7	19.21	43.89
site99	IS	Reykjavik Klettagarðar	14.84	20.45	24.74	50.72
site101	IT	Milan	1.86	1.56	2.06	6.79
site104	LT	Vilnius	6.18	5.84	32.94	6.14
site107	NL	Amsterdam	259.05	214.09	136.19	157.35
site108	NL	Eindhoven	230.04	210.44	133.54	109.73
site109	NL	Nieuwegein Ijssel.	46.66	25.56	37.05	41.43
site110	NL	Oudewater	44.54	16.24	11.01	17.07
site111	NL	Utrecht	62.36	48.25	42.16	61.05
site112	NO	Oslo	10.22	11.37	22.52	22.52
site113	PL	Krakow P	4.62	3.32		
site114	PT	Almada	8.73	3.37	1.43	8.62
site115	PT	Lisbon	15.7	15.72	16.38	42.17
site116	PT	Porto	10.19	6.25	7.49	13.41
site129	SI	Ljubljana	14.28	16.36	11.72	83.9
site133	SK	Bratislava (2)	7.75	8.23	11.81	10.92
site134	SK	Piestany	0.58	0.55	0.58	1.65

Data from 2016 study

2016: cocaine

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Cocaine residues in wastewater in selected European cities, 2016

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site3	AT	Innsbruck	140.33	131.03	177.57	236.55
site13	BE	Antwerp Deurne	406.43	344.42	394.53	448.28
site14	BE	Antwerp Zuid	776.91	670.11	808.53	1040.18
site17	BE	Brussels	319.82	376.04	392.35	491.75
site19	BE	Koksijde	55.38	34.11	61.97	71.18

site22	BE	Oostende	74.7	72.53	83.02	114.53
site24	CH	Basel	366.85	404.11	425.36	557.91
site25	CH	Berne	286.07	284.61	305.19	401.14
site26	CH	Geneva	407.72	424.78	515.08	591.17
site28	CH	Lugano	346.73	392.78	363.3	496.21
site29	CH	St. Gallen Hofen	394.96	406.98	448.02	606.8
site30	CH	Zurich	597.97	651.59	707.83	904.13
site31	CY	Limassol	113.11	118.4	172.99	147.89
site32	CY	Nicosia	71.25	59.05	80.7	86.58
site34	CZ	Budweis	4.73	2.4	3.08	5.58
site40	DE	Dortmund	487.4	538.96	465.1	504.23
site41	DE	Dresden	14.26	14.57	17.08	23.95
site42	DE	Dülmen	47.47	82.31	92.06	113.78
site49	DE	Munich Gut_Grosslappen	94.37	103.65	161.12	137.1
site55	ES	Barcelona	604.16	588.15	666.25	930.6
site56	ES	Castellon	287.58	325.69	477.35	479.04
site58	ES	Molina de Segura	320.96	402.52	426.09	658.1
site59	ES	Santiago	105.78	147.47	144.28	179.5
site60	ES	Valencia (3)	201.35	203.83	274.95	419.1
site61	FI	Espoo	5.49	6.35	6.76	15
site62	FI	Helsinki	12.64	13.15	14.81	24.72
site64	FI	Joensuu	1.76	0.59	0.56	1.27
site65	FI	Jyväskylä	0	0	0	0
site69	FI	Kotka	1.32	1.6	1.65	3.98
site71	FI	Kuopio	1.53	0.53	0.51	1.09
site72	FI	Lahti	12.9	29.27	10.06	4.15
site73	FI	Lappeenranta	0	0	0	0
site76	FI	Oulu	0	0	0	0
site80	FI	Rovaniemi	0.97	0.94	0.94	0.93
site82	FI	Savonlinna	0	0	0	0
site84	FI	Tampere	3.29	6.4	7.83	8.64
site85	FI	Turku	1.04	1.08	1.04	2.91

site86	FI	Vaasa	0	0	0	0
site88	FR	Bordeaux I	274.4	216.39	303.18	197.04
site90	FR	Paris Seine Centre	139.55	124.06	85.72	188.1
site92	GB	Bristol	117.02	288.9	349.52	565.38
site93	GB	London	637.52	644.05	732.16	1145.32
site94	GR	Athens	21.49	25.47	24.61	36.15
site98	HR	Zagreb	121.97	112.53	162.32	262.28
site99	IS	Reykjavik Klettagarðar	87.43	91.29	142.52	120.73
site101	IT	Milan	314.74	312.99	263.86	344.35
site108	NL	Eindhoven	347.49	401.78	426.65	606.2
site111	NL	Utrecht	305.72	273.91	281.14	412.44
site112	NO	Oslo	118.66	131.61	200.96	
site114	PT	Almada	69.75	76.18	57.91	85.3
site115	PT	Lisbon	218.05	264.75	241.17	306.44
site116	PT	Porto	60.59	78.47	90.95	114.94
site123	SE	Stockholm (2)	101.39	113.22	113.9	202.39
site133	SK	Bratislava (2)	70.78	58.28	58.97	76.99
site134	SK	Piestany	14.41	12.71	11.8	35.02

2016: amphetamine

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Amphetamine residues in wastewater in selected European cities, 2016

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site3	AT	Innsbruck	8.75	8.45	10.84	21.47
site13	BE	Antwerp Deurne	90.29	85.14	80.01	100.98
site14	BE	Antwerp Zuid	185.52	162.38	173.38	213.18
site17	BE	Brussels	34.49	30.97	31.18	36.2
site19	BE	Koksijde	38.23	21.02	29.88	32.83
site22	BE	Oostende	163.21	161.55	189.11	195

site24	CH	Basel	28.59	25.71	27.83	31.32
site25	CH	Berne	27.54	20.4	20.48	23.73
site26	CH	Geneva	10.4	5.55	15.07	6.45
site28	CH	Lugano	0	0	0	0
site29	CH	St. Gallen Hofen	28.68	28.46	36.06	46.93
site30	CH	Zurich	24.86	27.49	29.65	43.06
site31	CY	Limassol	13.04	7.42	5.23	6.11
site32	CY	Nicosia	1.51	1.75	3.42	4.29
site34	CZ	Budweis	24.49	15.93	16.91	25.41
site40	DE	Dortmund	184.88	179.24	147.2	182.1
site41	DE	Dresden	20.41	20.2	22.29	28.21
site42	DE	Dülmen	110.21	149.13	199.6	206.08
site49	DE	Munich Gut_Grosslappen	22.51	26.08	34.99	28.71
site55	ES	Barcelona	46.88	52.06	41.56	43.12
site56	ES	Castellon	0	0	0	0
site58	ES	Molina de Segura	0	0	0	0
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	6.03	6	7.14	9.48
site61	FI	Espoo	62.34	57.13	66.58	88.93
site62	FI	Helsinki	85.52	88.55	93.91	126.17
site64	FI	Joensuu	22.42	27.57	35.32	36.8
site65	FI	Jyväskylä	17.96	14.61	17.23	20.96
site69	FI	Kotka	82.47	71.93	67.93	87.24
site71	FI	Kuopio	21.24	18.18	25.79	46.24
site72	FI	Lahti	139.82	113.28	129.72	80
site73	FI	Lappeenranta	34.56	36.67	41.06	55.76
site76	FI	Oulu	40.22	32.37	38.17	30.54
site80	FI	Rovaniemi	64.35	70.33	81.21	95.83
site82	FI	Savonlinna	11.9	11.6	11.28	20.73
site84	FI	Tampere	71.96	75.87	83.91	88.09
site85	FI	Turku	57.29	78.23	64.11	85.56
site86	FI	Vaasa	29.71	30.15	27.13	34.58

site88	FR	Bordeaux I	0	0	0	0
site90	FR	Paris Seine Centre	0	0	0	0
site92	GB	Bristol	59.51	80.14	96.27	90.9
site94	GR	Athens	4.19	3.73	2.46	7.93
site98	HR	Zagreb	40.41	41.31	43.44	83.58
site99	IS	Reykjavik Klettagarðar	101.62	128.5	127.18	105.75
site101	IT	Milan	0	0	0	0
site111	NL	Utrecht	73.09	106.73	116.01	111.86
site112	NO	Oslo	130.54	115.1	104.56	
site114	PT	Almada	0	0	0	0
site115	PT	Lisbon	4.88	2.96	3.17	2.94
site116	PT	Porto	0	0	0	0
site123	SE	Stockholm (2)	226.45	195.3	208.99	219.42
site133	SK	Bratislava (2)	69.95	60.33	46.79	61.69
site134	SK	Piestany	29.34	26.44	19.67	44.75

2016: methamphetamine

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Methamphetamine residues in wastewater in selected European cities, 2016

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site3	AT	Innsbruck	2.56	1.85	1.63	1.83
site13	BE	Antwerp Deurne	3.58	3.67	3.35	3.42
site14	BE	Antwerp Zuid	7.52	6.65	8.64	9.19
site17	BE	Brussels	2.47	3.14	3.14	4.48
site19	BE	Koksijde	0	0	0	0
site22	BE	Oostende	0	0	0	0
site24	CH	Basel	20.43	21.36	17.44	18.03
site25	CH	Berne	10.27	9.71	8.18	7.86
site26	CH	Geneva	8.01	7.39	7.46	6.54

site28	CH	Lugano	0.65	0.26	0.24	0.77
site29	CH	St. Gallen Hofen	3	2.73	3.31	2.86
site30	CH	Zurich	23.03	25.15	25.02	26.33
site31	CY	Limassol	17.21	15.93	15.58	7.75
site32	CY	Nicosia	3.3	8.64	13.77	12.78
site34	CZ	Budweis	274.92	206.48	247.88	287.26
site40	DE	Dortmund	6.11	4.08	3.31	3.45
site41	DE	Dresden	135.18	135.34	137.3	150.88
site42	DE	Dülmen	1.94	2.14	8.92	2.12
site49	DE	Munich Gut_Grosslappen	13.2	13.1	50.07	39.92
site55	ES	Barcelona	25.23	21.29	23.73	27.17
site56	ES	Castellon	0	0	0	0
site58	ES	Molina de Segura	0	0	0	0
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	0.66	0.93	1.04	0.88
site61	FI	Espoo	99.05	93.78	93.53	103.89
site62	FI	Helsinki	77.95	82.1	88.65	89.75
site64	FI	Joensuu	2.22	3.4	2.05	1.79
site65	FI	Jyväskylä	63.76	52.75	58.54	69.95
site69	FI	Kotka	4.68	6.62	9.87	13.7
site71	FI	Kuopio	37.1	29.71	43.04	40.35
site72	FI	Lahti	6.28	5.15	2.32	1.84
site73	FI	Lappeenranta	6.56	4.82	2.87	2.68
site76	FI	Oulu	8.3	7.88	14.07	7.15
site80	FI	Rovaniemi	12.71	15.76	7.97	9.78
site82	FI	Savonlinna	5.1	5.06	6.06	20.6
site84	FI	Tampere	4.85	5.08	3.35	5
site85	FI	Turku	38.17	30.64	29.62	28.88
site86	FI	Vaasa	1.1	1.19	0.9	2.4
site88	FR	Bordeaux I	0	0	0	0
site90	FR	Paris Seine Centre	0	0	0	0

site92	GB	Bristol	0	0	0	0
site94	GR	Athens	1.91	3.11	2.76	2.82
site98	HR	Zagreb	0	0	0	0
site99	IS	Reykjavik Klettagarðar	7.49	6.08	11.27	8.08
site101	IT	Milan	14.32	13.49	12.54	14.21
site108	NL	Eindhoven	0.14	2.85	0.14	0.13
site111	NL	Utrecht	0	0	0	0
site112	NO	Oslo	50.48	50.73	70.48	
site114	PT	Almada	0.53	1.22	0.7	0.67
site115	PT	Lisbon	0	0	0	0
site116	PT	Porto	0.27	0.3	0.44	0.37
site123	SE	Stockholm (2)	21.22	23.29	19.52	23.09
site133	SK	Bratislava (2)	744.56	613.98	469.49	667.5
site134	SK	Piestany	263.03	266.96	186.87	466.94

2016: MDMA/ecstasy

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MDMA/ecstasy residues in wastewater in selected European cities, 2016

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site3	AT	Innsbruck	10.5	9.38	11.93	45.43
site13	BE	Antwerp Deurne	62.56	44.34	40.1	41.04
site14	BE	Antwerp Zuid	70.1	57.59	62.96	90.61
site17	BE	Brussels	8.84	10.37	14.14	80.46
site19	BE	Koksijde	4.09	1.83	3.97	5.05
site22	BE	Oostende	14.05	11.62	10.63	13.3
site24	CH	Basel	11.99	11.36	11.31	28.91
site25	CH	Berne	8.52	7.36	10.53	25.38
site26	CH	Geneva	11.84	11.47	20.16	66.43
site28	CH	Lugano	3.83	0.74	0.69	1.77
site29	CH	St. Gallen Hofen	14.35	15.52	11.8	37.59

site30	CH	Zurich	18.17	16.45	21.73	66.34
site31	CY	Limassol	6.11	3.09	2.71	2.31
site32	CY	Nicosia	1.74	0.79	0.81	0.7
site34	CZ	Budweis	8.59	8.72	6.15	10.85
site40	DE	Dortmund	20.88	19.6	16.54	34.22
site41	DE	Dresden	7.68	5.83	7.08	19.03
site42	DE	Dülmen	7.5	9.09	12.85	24.93
site49	DE	Munich Gut_Grosslappen	11.65	10.18	50.64	41.97
site55	ES	Barcelona	26.77	20.88	19.97	54.53
site56	ES	Castellon	6.85	6.77	3.39	4.29
site58	ES	Molina de Segura	0	0	0	0
site59	ES	Santiago	1.28	3.65	4.89	7.6
site60	ES	Valencia (3)	3.63	2.86	3.61	7.57
site61	FI	Espoo	7.32	8.9	13.91	54.59
site62	FI	Helsinki	9.41	11.67	13.71	54.98
site64	FI	Joensuu	2.7	8.01	2.62	3.42
site65	FI	Jyväskylä	7.66	14	11.99	27.74
site69	FI	Kotka	9.24	5.98	6.83	17.35
site71	FI	Kuopio	4.98	4.11	13.36	20.54
site72	FI	Lahti	6.46	15.41	11.53	23.95
site73	FI	Lappeenranta	1.99	3.71	19.61	39.92
site76	FI	Oulu	7.39	7.64	17.07	7.99
site80	FI	Rovaniemi	7.12	4.29	4.92	26.11
site82	FI	Savonlinna	15.12	7.81	6.86	25.63
site84	FI	Tampere	15.49	20.48	22.41	43.47
site85	FI	Turku	4.6	14.12	10.37	24.52
site86	FI	Vaasa	11.71	12.43	12.68	37.43
site88	FR	Bordeaux I	15.59	7.75	11.55	9.89
site90	FR	Paris Seine Centre	5.64	9.69	25.2	44.2
site92	GB	Bristol	4.29	13.28	13.83	84.84
site94	GR	Athens	1.78	2.09	1.06	3.99

site98	HR	Zagreb	19.84	14.24	13.72	72.78
site99	IS	Reykjavik Klettagarðar	25.96	28.92	37.83	55.24
site101	IT	Milan	1.74	1.41	1.59	6.32
site108	NL	Eindhoven	102.17	95.31	47.44	93.78
site111	NL	Utrecht	52.63	48.45	40	154.04
site112	NO	Oslo	62.09	56.49	157.37	
site114	PT	Almada	2.54	1.55	0.7	4.56
site115	PT	Lisbon	15.07	18.36	13.96	44.11
site116	PT	Porto	4.74	1.22	3.66	12.42
site123	SE	Stockholm (2)	21.95	19.21	14.96	55.25
site133	SK	Bratislava (2)	11.09	7.26	15.64	46.11
site134	SK	Piestany	6.94	5.59	2.95	18.97

Data from 2015 study

2015: cocaine

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Cocaine residues in wastewater in selected European cities, 2015

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site5	AT	Klosterneuburg	78.99	66.72	122.87	99.68
site13	BE	Antwerp Deurne	473.4	438.05	431.83	534.02
site14	BE	Antwerp Zuid	567.92	576.23	617.49	525.29
site17	BE	Brussels	395.18	405.3	463.7	600.91
site18	BE	Geraardsbergen	42.1	52.5	59.2	59.42
site19	BE	Koksijde	58.45	37.59	35.79	61.58
site21	BE	Ninove	68.73	76.2	94.25	138.09
site22	BE	Oostende	68.34	63.75	71.08	81.43
site24	CH	Basel	36.02	39.49	38.77	53.47
site25	CH	Berne	217.1	189.01	203.27	323.61
site26	CH	Geneva	412.01	391.03	478.46	589.24
site27	CH	Lausanne	237.43	269.23	341.73	418.02

site28	CH	Lugano	229.84	209.92	240.2	238.9
site29	CH	St. Gallen Hofen	377.48	551.95	717.89	454.45
site30	CH	Zurich	469.99	455.91	518.89	631.57
site31	CY	Limassol	87.64	101.22	100.6	62.55
site32	CY	Nicosia	62.58	78.62	58.87	58.69
site34	CZ	Budweis	4.81	4.37	4.47	9.08
site38	DE	Berlin (4)	153.47	146.28	121.89	137.76
site40	DE	Dortmund	267.12	255.26	270.79	330.18
site41	DE	Dresden	6.01	6.23	6.88	8.87
site42	DE	Dülmen	12.65	17.63	22.62	41.91
site49	DE	Munich Gut_Grosslappen	21.63		15.95	19.37
site54	DK	Copenhagen	338.62	243.32	150.22	243.31
site55	ES	Barcelona	399.72	519.31	450.81	520.32
site56	ES	Castellon	55.6	117.54	303.96	124.64
site58	ES	Molina de Segura	220.46	235.35	173.62	188.84
site59	ES	Santiago	62.32	90.1	121.86	147.08
site60	ES	Valencia (3)	255.57	243.95	279.94	469.77
site61	FI	Espoo	4.73	5.3	4.04	9.38
site62	FI	Helsinki	4.34	5.6	7.76	16.39
site84	FI	Tampere	5.49	4.21	4.87	5.9
site85	FI	Turku	0.65	0.95	1.17	0.75
site90	FR	Paris Seine Centre	126.95	146.26	186.04	239.9
site92	GB	Bristol	240.78	247.42	226.93	309.49
site93	GB	London	746.73	777.57	852.38	1238.8
site94	GR	Athens	48.43	57.24	68.29	89.56
site96	GR	Mytilene	0.26	0.91	0.19	1.11
site97	GR	Thessaloniki	5.79	7.98	7.57	7.87
site98	HR	Zagreb	92.69	90.69	94.53	102.09
site99	IS	Reykjavik Klettagarðar	51.6	62.01	69.81	50.53
site101	IT	Milan	191.62	171.84	187.85	199.91

site106	MT	Malta	25.67	87.55	68.29	92.09
site107	NL	Amsterdam	251.67	671.98	703.91	990.27
site108	NL	Eindhoven	251.36	89.58	333.75	479.61
site111	NL	Utrecht	184.51	108.95	192.23	255.14
site112	NO	Oslo	66.34	136.18	88.64	239.02
site114	PT	Almada	58.59	57.42	48.48	64.18
site115	PT	Lisbon	231.34	257.38	278.23	308.16
site116	PT	Porto	111.2	83.99	103.26	80.21
site133	SK	Bratislava (2)	50.8	44.57	71.35	115.98
site134	SK	Piestany	4.03	3.78	3.92	8.53

2015: amphetamine

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Amphetamine residues in wastewater in selected European cities, 2015

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site5	AT	Klosterneuburg	0	0	0	0
site13	BE	Antwerp Deurne	145.2	145.84	136.33	144.61
site14	BE	Antwerp Zuid	247.21	257.21	263.74	188.68
site17	BE	Brussels	47.12	49.42	56.08	62.28
site18	BE	Geraardsbergen	179.1	246.62	203.47	210.47
site19	BE	Koksijde	44.95	41.09	44.14	36.15
site21	BE	Ninove	105.75	115.52	120.8	122.85
site22	BE	Oostende	174.14	157.49	159.25	188.63
site24	CH	Basel	49.42	49.78	49.77	4.33
site25	CH	Berne	19.7	20.24	20.8	39.03
site26	CH	Geneva	7.42	6.33	6.03	6.73
site27	CH	Lausanne	8.06	8.25	13.3	12.28
site28	CH	Lugano	0	0	0	0
site29	CH	St. Gallen Hofen	31.05	31.02	42.07	37.66
site30	CH	Zurich	21.63	18.77	20.76	25.36
site31	CY	Limassol	5.9	5.16	8.48	5.62

site32	CY	Nicosia	1.15	1.8	1.13	2.63
site34	CZ	Budweis	17.54	19.94	19.6	18.92
site38	DE	Berlin (4)	119.31	110.03	110.38	109.84
site40	DE	Dortmund	159.54	151.53	164.78	190.77
site41	DE	Dresden	10.01	9.73	10.36	20.15
site42	DE	Dülmen	41.55	44.53	46.22	99.54
site49	DE	Munich Gut_Grosslappen	0		0	0
site54	DK	Copenhagen	8.12	8.24	8.04	7.91
site55	ES	Barcelona	45.89	26.54	30.72	31.11
site56	ES	Castellon	0	0	0	0
site58	ES	Molina de Segura	0	0	0	0
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	9.58	9.9	12.62	11.69
site61	FI	Espoo	67.78	72.36	69.63	106.56
site62	FI	Helsinki	94.92	98.28	113.03	143.99
site84	FI	Tampere	49.38	40	48.4	67.35
site85	FI	Turku	68.25	70.06	72.92	101.86
site90	FR	Paris Seine Centre	0	0	0	0
site92	GB	Bristol	87.41	83.58	75.19	85.78
site93	GB	London	0	0	0	0
site94	GR	Athens	5.05	9.98	10.03	13.08
site96	GR	Mytilene	0	0	0	0
site98	HR	Zagreb	170.15	159.52	46.2	46.13
site99	IS	Reykjavik Klettagarðar	76	76.72	95.89	68.11
site101	IT	Milan	1.88	1.8	3.62	1.79
site106	MT	Malta	3.52	5.94	2.6	3.82
site107	NL	Amsterdam	17.57	55.22	106.7	91.34
site111	NL	Utrecht	49.43	30.16	40.48	49.02
site112	NO	Oslo	136.98	129.02	136.66	142.17
site114	PT	Almada	1.88	1.82	1.57	1.22
site115	PT	Lisbon	0.75	0.76	0.76	3.99

site116	PT	Porto	0	0	0	0
site133	SK	Bratislava (2)	25.27	22.75	21.31	21.91
site134	SK	Piestany	15.53	12.43	22.95	29.58

2015: methamphetamine

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Methamphetamine residues in wastewater in selected European cities, 2015

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site5	AT	Klosterneuburg	0	0	0	0
site13	BE	Antwerp Deurne	17.3	15.07	13.46	14.22
site14	BE	Antwerp Zuid	8.16	8.46	7.44	6.09
site17	BE	Brussels	3.86	3.35	3.95	3.78
site18	BE	Geraardsbergen	0	0	0	0
site19	BE	Koksijde	1.06	0.65	1.44	1.29
site21	BE	Ninove	0.89	0.73	0.71	0.68
site22	BE	Oostende	0.6	0.88	0.91	0.69
site24	CH	Basel	4.19	4.17	3.85	11.46
site25	CH	Berne	12.1	10.98	11.6	17.35
site26	CH	Geneva	7.42	5.96	6.03	6.31
site27	CH	Lausanne	3.04	2.23	2.57	2.28
site28	CH	Lugano	0	0	0	0
site29	CH	St. Gallen Hofen	0	0	0	0
site30	CH	Zurich	22.38	18.01	21.91	24.88
site31	CY	Limassol	32.25	36.26	35.11	27.32
site32	CY	Nicosia	4.98	7.35	7.62	19.85
site34	CZ	Budweis	165.77	171.51	173.46	162.18
site38	DE	Berlin (4)	8.74	9.18	8.33	8.18
site40	DE	Dortmund	0	0	0	0
site41	DE	Dresden	127.35	133.15	138.37	128.97
site42	DE	Dülmen	0	0	0	0
site49	DE	Munich	3.49		6.81	9.45

		Gut_Grosslappen				
site54	DK	Copenhagen	13.44	11.65	11.09	10.37
site55	ES	Barcelona	33.98	41.19	42.9	28.52
site56	ES	Castellon	0	0	0	0
site58	ES	Molina de Segura	0	0	0	0
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	1.09	0.65	0.9	0.96
site61	FI	Espoo	4.67	4.16	3.28	4.65
site62	FI	Helsinki	4.01	3.56	5.18	6.53
site84	FI	Tampere	4.61	3.39	3.49	2.28
site85	FI	Turku	12.01	13.09	12.78	11.38
site90	FR	Paris Seine Centre	0	0	0	0
site92	GB	Bristol	1.04	1.23	1.11	0.1
site93	GB	London	0	0	0	0
site94	GR	Athens	3.69	4.41	5.53	4.8
site96	GR	Mytilene	0	0	0	0
site97	GR	Thessaloniki	0	0	0	0
site98	HR	Zagreb	0	0	0	0
site99	IS	Reykjavik Klettagarðar	14.8	18.33	21.02	12.6
site101	IT	Milan	12.32	9.35	9.44	9.29
site106	MT	Malta	0.67	0.3	0.08	0.07
site107	NL	Amsterdam	6.8	5.2	5.24	7.79
site111	NL	Utrecht	0	0	0	0
site112	NO	Oslo	114.58	178.66	111.57	175.12
site114	PT	Almada	0	0	0	0
site115	PT	Lisbon	0	0	0	0
site116	PT	Porto	0.54	0.49	0.38	0.52
site133	SK	Bratislava (2)	133.15	123.6	108.14	118.89
site134	SK	Piestany	96.08	61.61	137.68	180.32

2015: MDMA/ecstasy

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MDMA/ecstasy residues in wastewater in selected European cities, 2015

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site5	AT	Klosterneuburg	16.98	10.99	13.92	16.36
site13	BE	Antwerp Deurne	36.38	76.67	28.98	24.09
site14	BE	Antwerp Zuid	54.32	61.41	57.27	52.19
site17	BE	Brussels	9.66	8.81	10.32	25.75
site18	BE	Geraardsbergen	4.16	3.17	4.37	11.32
site19	BE	Koksijde	5.11	5.47	3.52	11.14
site21	BE	Ninove	6.19	5.7	7.49	9.96
site22	BE	Oostende	5.98	8.16	7.97	8.05
site24	CH	Basel	7.82	5.28	4.95	2.67
site25	CH	Berne	4.15	3.09	7.16	24.39
site26	CH	Geneva	10.39	10.06	17.01	40.4
site27	CH	Lausanne	12.36	16.27	41.06	82.08
site28	CH	Lugano	2.11	1.46	3.39	9.11
site29	CH	St. Gallen Hofen	8.22	18.7	35.51	30.97
site30	CH	Zurich	10.44	8.43	13.84	42.58
site31	CY	Limassol	2.02	3.33	3.46	2.17
site32	CY	Nicosia	0.98	3.57	2.84	1.82
site34	CZ	Budweis	2.4	2.32	2.11	2.14
site38	DE	Berlin (4)	40.99	31.9	20.89	18.05
site40	DE	Dortmund	9.07	9.32	10.37	23.97
site41	DE	Dresden	3.2	2.34	2.9	4.84
site42	DE	Dülmen	2.71	3.48	3.44	15.72
site49	DE	Munich Gut_Grosslappen	5.58		2.52	3.69
site54	DK	Copenhagen	53.22	33.54	26.89	24.55
site55	ES	Barcelona	30.85	18.49	20.48	34.74
site56	ES	Castellon	4.17	4.08	3.29	2.54
site58	ES	Molina de Segura	4.27	3.05	2.52	3.47

site59	ES	Santiago	10.61	10.73	11.12	11.24
site60	ES	Valencia (3)	3.38	2.9	3.53	8.9
site61	FI	Espoo	8.85	9.03	11.15	82.47
site62	FI	Helsinki	10.12	12.82	16.81	72.63
site84	FI	Tampere	15.34	15.02	19.49	34.82
site85	FI	Turku	5.85	8.38	12.66	36
site90	FR	Paris Seine Centre	1.99	1.98	1.97	42.01
site92	GB	Bristol	25.37	22.89	16.26	34.91
site93	GB	London	44.3	43.96	44.1	42.85
site94	GR	Athens	1.22	1.45	6.28	4.62
site96	GR	Mytilene	0.26	0.96	0.19	0.84
site98	HR	Zagreb	16.05	15.56	11.67	35.66
site101	IT	Milan	2.78	2.98	1.39	3.42
site107	NL	Amsterdam	226.86	93.43	81.17	201.78
site108	NL	Eindhoven	53.99	18.35	67.86	88.63
site111	NL	Utrecht	51.25	19.38	62.89	91.17
site112	NO	Oslo	24.7	30.26	17.68	45.77
site114	PT	Almada	1.88	1.71	1.35	4.44
site115	PT	Lisbon	8.67	6.09	9.12	26.23
site116	PT	Porto	6.15	3.71	3.79	4.85
site133	SK	Bratislava (2)	7.02	3.77	4.07	5.8
site134	SK	Piestany	0	0	0	0

Data from 2014 study

2014: cocaine

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Cocaine residues in wastewater in selected European cities, 2014

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site13	BE	Antwerp Deurne	270.21	270.26	411.34	346.66
site14	BE	Antwerp Zuid	439.3	565.73	551.01	674.66

site18	BE	Geraardsbergen	51.64	59.98	88.82	77.09
site21	BE	Ninove	88.14	111.14	135.71	136.21
site24	CH	Basel	406.34	404.31	435.72	463.67
site25	CH	Berne	336.91	384.9	386.1	374.46
site26	CH	Geneva	355.07	439.72	490.81	613.07
site27	CH	Lausanne	242.43	250.33	346.93	460.52
site28	CH	Lugano	234.1	238.64	244.44	299.11
site29	CH	St. Gallen Hofen	252.59	309.66	379.19	492.31
site30	CH	Zurich	445.62	446.59	548.52	834.48
site38	DE	Berlin (4)	128.02	162.48	167.59	225.79
site40	DE	Dortmund	259.07	272.48	246.27	310.79
site41	DE	Dresden	7.81	6.79	7.33	9.41
site42	DE	Dülmen	12.02	19.33	19.51	42.51
site49	DE	Munich Gut_Grosslappen	80.77	74.15	64.73	75.85
site54	DK	Copenhagen	275.25	304.94	334.38	451.76
site55	ES	Barcelona	402.79	426.96	509.22	541.81
site56	ES	Castellon	57.84	124.36	163.29	430.13
site59	ES	Santiago	150.4	153.81	171.48	216.84
site60	ES	Valencia (3)	179.5	643.1	283.71	385.29
site61	FI	Espoo	4.39	4.8	6.46	7.37
site62	FI	Helsinki	6.85	7.13	9.22	11.41
site64	FI	Joensuu	0.82	0.13	0.13	0.65
site65	FI	Jyväskylä	0.34	0.31	0.33	0.34
site69	FI	Kotka	2.8	1.64	2.03	3.26
site71	FI	Kuopio	6.32	6.39	4.39	3.94
site72	FI	Lahti	7.34	10.16	10.38	12.34
site73	FI	Lappeenranta	3.29	0.79	0.37	1.48
site76	FI	Oulu	0.25	0.26	0.12	0.35
site80	FI	Rovaniemi	0.38	0.35	0.16	0.14
site82	FI	Savonlinna	0.7	0.49	0.46	0.34
site84	FI	Tampere	0.72	0.86	1.86	1.25
site85	FI	Turku	1.43	1.31	1.61	1.63

site86	FI	Vaasa	0.44	0.58	1.27	1.13
site90	FR	Paris Seine Centre	194.71	212.28	232.91	314.97
site92	GB	Bristol	190.39	203.45	223.49	369.63
site93	GB	London	726	729.18	827.17	852.05
site94	GR	Athens	74.47	64.59	66.76	99.04
site98	HR	Zagreb	63.88	60.57	77.83	101.61
site101	IT	Milan	200.79	199.12	214.27	224.73
site107	NL	Amsterdam	634.31	694.61	652	761.88
site108	NL	Eindhoven		302.91	302.05	449.24
site111	NL	Utrecht	248.16	214.86	184.65	236.38
site112	NO	Oslo	265.93	222.17	252.13	375.34
site114	PT	Almada	53.65	38.91	68.26	71.23

2014: amphetamine

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Amphetamine residues in wastewater in selected European cities, 2014

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site13	BE	Antwerp Deurne	95.91	91.23	136.77	118.44
site14	BE	Antwerp Zuid	144.14	202.41	185.12	212.19
site18	BE	Geraardsbergen	206.56	225.01	326.11	187.8
site21	BE	Ninove	98.39	101.82	192.64	133.5
site24	CH	Basel	13.56	15.62	14.2	14.72
site25	CH	Berne	16.03	16.58	19.08	17.16
site26	CH	Geneva	0	0	0	0
site27	CH	Lausanne	6.77	4.8	6.31	13.41
site28	CH	Lugano	0	0	0	0
site29	CH	St. Gallen Hofen	12.09	28.29	24.49	53.36
site30	CH	Zurich	13.33	14.66	20.63	34.17
site38	DE	Berlin (4)	92.22	102.97	92.8	133.23
site40	DE	Dortmund	143.93	145.79	173.37	181.3

site41	DE	Dresden	22.85	21.73	9.64	16.81
site42	DE	Dülmen	48.63	54.13	69.69	100.74
site49	DE	Munich Gut_Grosslappen	13.83	13.43	13.71	26.71
site55	ES	Barcelona	21.05	20.89	28	32.22
site56	ES	Castellon	0	0	0	0
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	7.44	14.59	9.51	12.97
site61	FI	Espoo	41.73	41.53	48.03	60.07
site62	FI	Helsinki	60.04	58.54	67.73	79.13
site64	FI	Joensuu	24.55	18.4	17.42	28.77
site65	FI	Jyväskylä	51.63	45.77	47.62	54.91
site69	FI	Kotka	114.26	94.94	90.71	111.74
site71	FI	Kuopio	25.9	32.69	48.88	72.71
site72	FI	Lahti	110.66	136.91	150.48	166.96
site73	FI	Lappeenranta	18.79	19.19	24.93	29.79
site76	FI	Oulu	23.73	21.49	25.99	25.77
site80	FI	Rovaniemi	38.07	39.08	49.96	58.99
site82	FI	Savonlinna	15.64	12.42	13.42	24.33
site84	FI	Tampere	34.67	34.66	39.74	53.52
site85	FI	Turku	48.28	47.58	61.09	86.62
site86	FI	Vaasa	30.48	39.36	48.08	57.25
site90	FR	Paris Seine Centre	0	0	0	0
site92	GB	Bristol	87.16	83.24	80.89	90.61
site93	GB	London	0	0	0	0
site94	GR	Athens	25	17.5	9.41	12.56
site98	HR	Zagreb	14.91	9.48	13.49	23.49
site101	IT	Milan	0	0	0	0
site107	NL	Amsterdam	71.76	155.41	103.52	78.28
site108	NL	Eindhoven		248.42	144.88	204.76
site111	NL	Utrecht	268.21	82.13	52.91	61.96
site114	PT	Almada	1.84	2.69	0.49	0.38

2014: methamphetamine

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Methamphetamine residues in wastewater in selected European cities, 2014

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site13	BE	Antwerp Deurne	1.84	1.72	2.43	2.65
site14	BE	Antwerp Zuid	12.59	29.83	24.23	23.95
site18	BE	Geraardsbergen	0.27	0.54	0.65	0.52
site21	BE	Ninove	0.46	0.23	0.66	0.39
site24	CH	Basel	13.48	16.17	14.51	12.63
site25	CH	Berne	13.92	13.37	8.83	5.34
site26	CH	Geneva	0	0	0	0
site27	CH	Lausanne	2.21	2.59	4.48	6.41
site28	CH	Lugano	0	0	0	0
site29	CH	St. Gallen Hofen	9.07	2.12	2.09	5.83
site30	CH	Zurich	17.38	20.84	21.57	22.84
site38	DE	Berlin (4)	6.06	12.26	6.21	12.97
site40	DE	Dortmund	0	0	0	0
site41	DE	Dresden	131.77	119.54	115.67	135.83
site42	DE	Dülmen	0	0	0	0
site49	DE	Munich Gut_Grosslappen	0	0	0	0
site54	DK	Copenhagen	0	0	0	0
site55	ES	Barcelona	15.16	20.75	22.02	23.66
site56	ES	Castellon	0	0	0	0
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	0.97	1.34	1.32	1.08
site61	FI	Espoo	3.62	3.09	2.75	2.89
site62	FI	Helsinki	3.95	3.57	3.49	3.63
site64	FI	Joensuu	2.64	1.53	0.95	1.56
site65	FI	Jyväskylä	1.5	1.42	1.52	1.77
site69	FI	Kotka	2.3	1.59	1.73	1.75

site71	FI	Kuopio	7.63	6.83	5.39	5.91
site72	FI	Lahti	61.64	4.88	4.73	6.94
site73	FI	Lappeenranta	0.98	1.29	0.67	0.95
site76	FI	Oulu	1.51	1.11	1.62	1.2
site80	FI	Rovaniemi	2.64	2.24	2.09	2.04
site82	FI	Savonlinna	43.07	35.32	23.99	36.85
site84	FI	Tampere	1.2	1.24	2.49	1.65
site85	FI	Turku	3.83	3.21	3.98	3.34
site86	FI	Vaasa	1.74	2.74	4.34	4.39
site90	FR	Paris Seine Centre	0	0	0	0
site92	GB	Bristol	2.78	2.59	2.06	1.9
site93	GB	London	0	0	0	0
site94	GR	Athens	6.28	3.9	5.46	5.52
site98	HR	Zagreb	0.67	0.66	0.65	0.64
site101	IT	Milan	5.19	4.99	5.05	5.16
site107	NL	Amsterdam	2.75		5.08	1.73
site112	NO	Oslo	292.23	285.64	199.8	230.38
site114	PT	Almada	0.51	1.59	0.49	0.38

2014: MDMA/ecstasy

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MDMA/ecstasy residues in wastewater in selected European cities, 2014

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site13	BE	Antwerp Deurne	15.05	11.56	23.14	15.53
site14	BE	Antwerp Zuid	35.6	30.12	35.46	57.56
site18	BE	Geraardsbergen	14.72	12.76	16.86	10.35
site21	BE	Ninove	7.97	5.83	34.42	18.96
site24	CH	Basel	11.45	11.38	15.08	25.91
site25	CH	Berne	7.76	4.12	8.98	19.38
site26	CH	Geneva	8.91	8.6	20.66	51.62

site27	CH	Lausanne	7.07	7.7	22.54	52.84
site28	CH	Lugano	5.31	3.21	0.87	6.43
site29	CH	St. Gallen Hofen	7.98	22.85	20.82	59.54
site30	CH	Zurich	15.49	10.94	16.19	69.35
site38	DE	Berlin (4)	17.2	14.45	13.29	23.68
site40	DE	Dortmund	10.55	8.04	3.69	10.96
site41	DE	Dresden	2.86	2.91	2.89	5.04
site42	DE	Dülmen	2.07	3.22	7.43	8.32
site49	DE	Munich Gut_Grosslappen	11.06	9.67	8.78	10.68
site54	DK	Copenhagen	0.99	1	49.32	57.62
site55	ES	Barcelona	13.79	11.75	17.94	49.08
site56	ES	Castellon	3.74	4.16	3.54	7.37
site59	ES	Santiago	11.74	11.47	17.04	10.31
site60	ES	Valencia (3)	3.3	5.83	3.16	11.67
site61	FI	Espoo	10.4	11.27	7.52	21.1
site62	FI	Helsinki	6.66	6.42	9.26	32.37
site64	FI	Joensuu	1.67	0.88	2.28	1.55
site65	FI	Jyväskylä	4.78	3.54	4.26	6.74
site69	FI	Kotka	3.75	2.44	2.01	9.28
site71	FI	Kuopio	6.04	2.98	5.56	14.78
site72	FI	Lahti	6.99	14.48	26.21	45.73
site73	FI	Lappeenranta	8.88	2.97	2.28	7.94
site76	FI	Oulu	31.86	26.21	35.38	61.8
site80	FI	Rovaniemi	8.26	12.31	14.74	21.19
site82	FI	Savonlinna	0.15	0.78	1.81	2.02
site84	FI	Tampere	4.4	5.48	7.32	19.12
site85	FI	Turku	3.94	5.72	8.2	21.23
site86	FI	Vaasa	6.71	6.5	6.86	15.47
site90	FR	Paris Seine Centre	2.38	2.47	2.4	42.61
site92	GB	Bristol	16.43	12.36	17.92	49.88
site93	GB	London	40.03	43.34	101.7	170.14

site94	GR	Athens	3.28	2.17	2.03	5.24
site98	HR	Zagreb	6.39	5.27	5.19	14.3
site101	IT	Milan	1.62	1.63	2.17	7.07
site107	NL	Amsterdam	126.67	112.4	104.8	111.3
site111	NL	Utrecht	44.24	40.87	43.45	58.62
site112	NO	Oslo	2.39	78.1	64.54	107.75
site114	PT	Almada	0	0	0	0

Data from 2013 study

2013: cannabis

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Cannabis residues in wastewater in selected European cities, 2013

SiteID	country	city	Wednesday	Thursday	Friday	Saturda
site13	BE	Antwerp Deurne	58.4	50.36	66.2	55.67
site14	BE	Antwerp Zuid	128.1	122.37	113.82	92.8
site18	BE	Geraardsbergen	24.88	22.8	93.36	65.19
site21	BE	Ninove	30.06	47.3	105.92	49.92
site27	CH	Lausanne	95.89	74.98	126.33	215.27
site28	CH	Lugano	49.02	53.82	59.03	79.26
site38	DE	Berlin (4)	48.64	49.43	48.1	66.43
site40	DE	Dortmund	80.6	72.39	82.75	84.67
site41	DE	Dresden	28.94	24.84	28.53	45.73
site42	DE	Dülmen	27.08	31.79	35.31	41.59
site49	DE	Munich Gut_Grosslappen	37.62	47.29	38.4	38.46
site54	DK	Copenhagen	0	0	0	0
site55	ES	Barcelona	188.32	173.49	176.5	159.77
site56	ES	Castellon	71.8	68.84	59.46	42.37
site59	ES	Santiago	96.44	75.16	72.09	71.82
site60	ES	Valencia (3)	149.53	31.8	40.5	51.38
site90	FR	Paris Seine	127.59	147.11	112.5	109.46

		Centre				
site94	GR	Athens	53.85	69.05	23.7	95.25
site98	HR	Zagreb	79.32	82.68	83.02	73.53
site101	IT	Milan	22.89	22.28	23.06	19.53
site107	NL	Amsterdam	545.09	313.77	307.25	273.45
site108	NL	Eindhoven		83.09	76.01	125
site111	NL	Utrecht	111.72	69.03	67.19	
site112	NO	Oslo	0	0	0	0
site114	PT	Almada	54.98	49.06	35.07	26.52

2013: cocaine

Download as CSV (/system/files/attachments/13776/WW-data-cocaine-2013.csv)

Cocaine residues in wastewater in selected European cities, 2013

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site12	BA	Sarajevo	18.31	24.23	23.85	44.62
site13	BE	Antwerp Deurne	371.57	433.84	379.41	683.98
site14	BE	Antwerp Zuid	847.68	737.47	823.37	794.5
site17	BE	Brussels	227.11	218.37	196.6	179.39
site18	BE	Geraardsbergen	20.49		19.58	31.61
site19	BE	Koksijde	51.35	25.47	51.83	56.27
site21	BE	Ninove	95.11	98.71	105.06	140.1
site24	CH	Basel	486.88	359.43	432.76	536.12
site25	CH	Berne	238.7	267.75	418.27	257.88
site26	CH	Geneva	281.92	315.33	664.09	365.75
site29	CH	St. Gallen Hofen	343.43	343.75	540.28	541.31
site30	CH	Zurich	526.12	574.36	793.71	877.2
site31	CY	Limassol	12.86	14.33	12.19	14.56
site32	CY	Nicosia	69.08	39.24	54.91	39.72
site34	CZ	Budweis	2.37	2.33	2.3	3.03

site37	CZ	Prague	85.5	39.58	48.34	62.7
site40	DE	Dortmund	283.58	297.72	333.74	407.09
site41	DE	Dresden	5.77	7.52	7.11	5.12
site42	DE	Dülmen	31.59	42.59	36.52	93.38
site54	DK	Copenhagen	171.71	184.61	322.89	191.27
site55	ES	Barcelona	366.91	503.54	433.04	714.38
site56	ES	Castellon	112.3	121.31	116.57	300.83
site59	ES	Santiago	106.98	120.36	89.96	149.32
site60	ES	Valencia (3)	334.44	312.99	334.85	516.3
site90	FR	Paris Seine Centre	178.89	249.2	275.82	359.59
site93	GB	London	692.98	726.17	421.04	903.65
site94	GR	Athens	56.77	62.63	52.42	47.08
site98	HR	Zagreb	68.32	69.78	73.17	112.05
site101	IT	Milan	215.21	197.67	213.37	288.68
site107	NL	Amsterdam	361.64	376.34	318.59	603.69
site108	NL	Eindhoven	187.32	411.84	918.06	477.6
site111	NL	Utrecht	163.54	156.64	250.01	324.48
site112	NO	Oslo	35.38	36.81	81.67	113.11
site115	PT	Lisbon	99.34	105.68		135.1
site117	RO	Cluj Napoca	0	0	0	0
site118	RS	Belgrade	34.61	31.62	19.95	34.01
site119	RS	Novi Sad		11.03	10.04	21.46
site120	SE	Gothenburg	21.96	26.61	26.5	26.67
site125	SE	Umea	4.13	5.5	7.44	7.44
site133	SK	Bratislava (2)	16.99	33.64	36.18	50.92
site134	SK	Piestany	3.27	2.8	2.65	6.38

2013: amphetamine

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Amphetamine residues in wastewater in selected European cities, 2013

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site12	BA	Sarajevo	26.15	36	40.77	80.77
site13	BE	Antwerp Deurne	98.61	124.28	102.98	157.75
site14	BE	Antwerp Zuid	180.1	180.25	190.51	166.19
site17	BE	Brussels	23.43	24.07	22.61	16.89
site18	BE	Geraardsbergen	0.49		0.8	1.32
site19	BE	Koksijde	21.55	22.58	27.78	31.11
site21	BE	Ninove	90.05	85.15	85.33	129.57
site24	CH	Basel	45.53	45.8	14.77	27.92
site25	CH	Berne	22.01	15.58	28.43	17.12
site26	CH	Geneva	0	0	0	0
site30	CH	Zurich	13.15	65.12	40.41	28.38
site31	CY	Limassol	1.98	1.99	2.22	1.49
site32	CY	Nicosia	3.77	4.02	2.83	2.76
site34	CZ	Budweis	19.95	18.66	23	22.86
site37	CZ	Prague	34.48	34.08	36.52	40.41
site40	DE	Dortmund	88.26	80.78	83.97	119.61
site41	DE	Dresden	0	0	0	0
site42	DE	Dülmen	50.16	66.48	61.71	91
site54	DK	Copenhagen	27.89	30.9	35.32	30.28
site55	ES	Barcelona	16.22	20.27	20.97	23.56
site56	ES	Castellon	9.77	10.02	10.42	6.77
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	5.53	5.31	6.76	10.41
site62	FI	Helsinki	96.19	93.33	84.42	127.34
site85	FI	Turku	53.51	49.49	55.97	58.24
site90	FR	Paris Seine Centre	0	0	0	0
site93	GB	London	0	0	0	0
site94	GR	Athens	17.91	17.07	15.21	14.69
site98	HR	Zagreb	4.06	6.65	7.95	14.01
site107	NL	Amsterdam	64.67	56.76	51.64	157.06

site111	NL	Utrecht	30.98	29.8	76.41	76.13
site112	NO	Oslo	52.51	46.6	76.33	77.15
site115	PT	Lisbon	0	0		0
site117	RO	Cluj Napoca	0	0	0	0
site118	RS	Belgrade	17.94	20.71	9.44	17.01
site119	RS	Novi Sad		24.43	20.08	21.82
site120	SE	Gothenburg	210.62	266.44	224.18	134.7
site125	SE	Umea	13.22	21.43	32.68	39.58
site133	SK	Bratislava (2)	12.92	15.42	14.6	16.69
site134	SK	Piestany	18.96	14.55	13.78	12.76

2013: methamphetamine

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Methamphetamine residues in wastewater in selected European cities, 2013

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site12	BA	Sarajevo	0	0	0	0
site13	BE	Antwerp Deurne	5.19	6.51	6.1	10.32
site14	BE	Antwerp Zuid	5.51	4.56	3.63	6.78
site17	BE	Brussels	1.42	1.57	1.51	0.98
site18	BE	Geraardsbergen	0		0	0
site19	BE	Koksijde	0	0	0	0
site21	BE	Ninove	0	0	0	0
site24	CH	Basel	15.49	17.18	2.58	14.8
site25	CH	Berne	15.11	16.42	18.78	14.88
site26	CH	Geneva	0	0	0	0
site29	CH	St. Gallen Hofen	6.85	5.94	8.05	7.22
site30	CH	Zurich	16.78	21.26	19.72	20.64
site31	CY	Limassol	3.32	4.88	3.93	3.14
site32	CY	Nicosia	1.12	2.02	1.28	1.3

site34	CZ	Budweis	184.77	209.01	247.9	252.87
site37	CZ	Prague	308.91	310.6	325.79	350.64
site40	DE	Dortmund	0	0	0	0
site41	DE	Dresden	145.37	171.49	129.88	137.78
site42	DE	Dülmen	0	0	0	0
site54	DK	Copenhagen	9.98	9.61	10.7	8.41
site55	ES	Barcelona	24.83	28.32	28.48	25
site56	ES	Castellon	0	0	0	0
site59	ES	Santiago	0	0	0	0
site60	ES	Valencia (3)	1.02	1	0.96	1.02
site90	FR	Paris Seine Centre	3.33	4.89	3.65	4.47
site93	GB	London	2.01	2.19	2.03	15.33
site94	GR	Athens	3.9	5.65	4.68	5
site101	IT	Milan	5.06	5.01	5.3	7.36
site107	NL	Amsterdam	3.86	3.2	11.66	5.87
site108	NL	Eindhoven	0	0	0	0
site111	NL	Utrecht	0	0	0	0
site112	NO	Oslo	74.57	69.31	129	139.32
site115	PT	Lisbon	0	0		0
site117	RO	Cluj Napoca	0	0	0	0
site118	RS	Belgrade	0	0	0	0
site119	RS	Novi Sad		0	0	0
site120	SE	Gothenburg	0	0	0	0
site125	SE	Umea	0	0	0	0
site133	SK	Bratislava (2)	127.92	145.18	148.28	173.81
site134	SK	Piestany	163.44	127.61	113.43	125.66

2013: MDMA/ecstasy

Download as CSV (/system/files/attachments/13776/WW-data-MDMA-2013.csv)

MDMA/ecstasy residues in wastewater in selected European cities, 2013

SiteID	country	city	Wednesday	Thursday	Friday	Saturday
site12	BA	Sarajevo	0	0	0	0
site13	BE	Antwerp Deurne	27.69	21.64	20.65	44.39
site14	BE	Antwerp Zuid	59.67	46.54	43.79	51.44
site17	BE	Brussels	7.14	7.97	7.48	13.1
site18	BE	Geraardsbergen	4.32		3.88	5.86
site19	BE	Koksijde	6	2.41	4.87	10.76
site21	BE	Ninove	4.82	5.26	8.15	14.08
site24	CH	Basel	10.43	8.91	11.68	29.88
site25	CH	Berne	13.81	8.42	49.75	31.26
site26	CH	Geneva	6.44	9.34	38.95	27.06
site29	CH	St. Gallen Hofen	14.75	28.34	27.38	69.95
site30	CH	Zurich	16.33	12.66	13.95	53.32
site31	CY	Limassol	0.32	0.49	0.37	0.73
site32	CY	Nicosia	1.28	1.05	1.25	1.65
site34	CZ	Budweis	4.75	4.67	5.06	17.73
site37	CZ	Prague	8.83	9.07	19.18	48.14
site40	DE	Dortmund	0.95	0.88	8.52	20.81
site41	DE	Dresden	0	0	0	0
site42	DE	Dülmen	0.44	0.57	0.74	1.99
site54	DK	Copenhagen	9.98	8.05	23.88	10.81
site55	ES	Barcelona	14.04	18.45	25.34	41.87
site56	ES	Castellon	0.39	0.4	4.17	10.43
site60	ES	Valencia (3)	2.53	1.99	3.17	9.38
site62	FI	Helsinki	9.68	14.89	10.48	49.92
site85	FI	Turku	3.62	1.54	1.53	5.14
site90	FR	Paris Seine Centre	5.84	7.92	8.44	46.16
site93	GB	London	3.02	3.28	10.81	68.8
site94	GR	Athens	1.17	2.1	0.64	0.44
site98	HR	Zagreb	3.42	3.59	4.85	19.3
site101	IT	Milan	3.36	2.42	2.36	8.54

site107	NL	Amsterdam	53.52	55.16	36.02	144.84	
site111	NL	Utrecht	57.55	58.01	78.79	107.83	
site112	NO	Oslo	3.42	3.52	9.54	12.73	
site115	PT	Lisbon	4.13	1.23		6.15	
site117	RO	Cluj Napoca	0	0	0	0	
site118	RS	Belgrade	8.23	3.71	3.43	6.76	
site119	RS	Novi Sad		7.88	4.02	5.72	
site120	SE	Gothenburg	5.64	5.7	5.42	5.31	
site125	SE	Umea	2.42	4.12	5.58	5.58	
site133	SK	Bratislava (2)	3.17	3.86	3.42	10.36	
site134	SK	Piestany	0	0	0	0	

Data from 2012 study

2012: cannabis

Download as CSV (/system/files/attachments/13776/WW-data-cannabis-2012.csv)

Cannabis residues in wastewater in selected European cities, 2012

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sur
site13	BE	Antwerp Deurne	64.99	82.55	55.12	54.65	62.(
site14	BE	Antwerp Zuid	128.85	131.03	116.29	134.51	130
site17	BE	Brussels	89.51	63.47	61.68	65.17	82.8
site34	CZ	Budweis	58.09	72.77	58.44	30.66	53.(
site37	CZ	Prague	62.87	63.28	67.32	57.34	57.3
site55	ES	Barcelona	85.17	87.43	86.53	92.31	65.8
site56	ES	Castellon	100.04	107.75	120.66	114.2	170
site59	ES	Santiago	114.69	57.85	115.13	110.54	99.4
site90	FR	Paris Seine Centre	110.32	120.74	104.32	140.77	116
site98	HR	Zagreb	40.31	45.22	49.16	41.87	46.3
site101	IT	Milan	22.3	32.16	21.81	19.93	19.5

site107	NL	Amsterdam	169.84	138.31	160.67	180.8	214
site108	NL	Eindhoven	81.59	102.36	60.58	99.23	97.1
site111	NL	Utrecht	149.72	131.17	119.15	169.13	121
site112	NO	Oslo	113.46	83.27	66.98	95.88	79.1
site120	SE	Gothenburg	0	0	0	0	0
site125	SE	Umea	0	0	0	0	0

2012: cocaine

Download as CSV (/system/files/attachments/13776/WW-data-cocaine-2012.csv)

Cocaine residues in wastewater in selected European cities, 2012

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sur
site13	BE	Antwerp Deurne	353.69	341.26	256.28	341.48	350
site14	BE	Antwerp Zuid	741.87	655.67	577.36	729.08	805
site17	BE	Brussels	151.11	138.08	158.39	197.5	235
site24	CH	Basel	298.61	261.85	268.6	261.92	352
site25	CH	Berne	224.03	254.17	280.74	323.6	265
site26	CH	Geneva	502.62	361.07	279.45	272.61	276
site29	CH	St. Gallen Hofen	144.74	203.1	203.51	246.13	305
site30	CH	Zurich	368.23	397.78	368.17	423.77	526
site34	CZ	Budweis	5.27	6.89	5.79	3.16	5.38
site37	CZ	Prague	36.03	42.11	39.41	51.66	68.8
site55	ES	Barcelona	338.01	380.4	382.59	344.38	472
site56	ES	Castellon	230.74	219.69	206.14	276.78	376
site59	ES	Santiago	173.67	99.01	161.54	256.91	319
site62	FI	Helsinki	5.72	4.78	5.9	4.92	12.0
site85	FI	Turku	0	0	0	0	0
site90	FR	Paris Seine Centre	128.33	159.92	122.4	184.89	264
site98	HR	Zagreb	53.76	53.52	61.82	58.94	103

site101	IT	Milan	193.5	229.53	210.11	241.82	286
site107	NL	Amsterdam	557.51	627.75	584.19	636.9	766
site108	NL	Eindhoven	312.57	328.94	213.57	395.51	360
site111	NL	Utrecht	295.55	291.57	274.72	348.79	456
site112	NO	Oslo	95.64	89.94	63.52	123.78	149
site120	SE	Gothenburg	17.74	16.86	18.3	23.98	36.
site125	SE	Umea	0	0	0	0	0

2012: amphetamine

Download as CSV (/system/files/attachments/13776/WW-data-amphetamine-2012.csv)

Amphetamine residues in wastewater in selected European cities, 2012

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sur
site13	BE	Antwerp Deurne	134.98	118.65	78.78	112.59	99.3
site14	BE	Antwerp Zuid	159.43	168.51	131.1	151.4	163
site17	BE	Brussels	37.56	42.43	27.36	37.22	35.9
site24	CH	Basel	0	0	0	0	0
site25	CH	Berne	36.34	30.33	26.41	30.68	45.
site26	CH	Geneva	14.88	65.18	70.98	69.44	18.3
site30	CH	Zurich	0	0	0	0	0
site34	CZ	Budweis	16.6	25.31	17.46	7.46	23.3
site37	CZ	Prague	31.19	33.2	31.47	29.38	38.3
site55	ES	Barcelona	14	10.59	11.59	11.41	14.9
site56	ES	Castellon	0	0	0	0	0
site59	ES	Santiago	0	0	0	0	0
site62	FI	Helsinki	48.78	42.43	40.91	42.54	42.
site85	FI	Turku	24.22	39.61	43.73	58.09	52.4
site90	FR	Paris Seine Centre	0	0	0	0	0
site98	HR	Zagreb	9.12	8.75	8.4	7.25	16.3
site101	IT	Milan	0	0	0	0	0

site107	NL	Amsterdam	35.57	27.69	22.55	24.58	30.
site108	NL	Eindhoven	649.09	493.11	310.65	863.53	258
site111	NL	Utrecht	44.42	42.52	38.51	44.26	48.
site112	NO	Oslo	96.33	74.79	59.25	116.69	128
site120	SE	Gothenburg	80.61	79.52	75.15	86.73	75.
site125	SE	Umea	0	0	0	0	0

2012: methamphetamine

Download as CSV (/system/files/attachments/13776/WW-data-methamphetamine-2012.csv)

Methamphetamine residues in wastewater in selected European cities, 2012

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sur
site13	BE	Antwerp Deurne	6.05	4.72	4.39	6.23	5.4
site14	BE	Antwerp Zuid	8.93	6.25	4.16	4.46	7.0
site17	BE	Brussels	2.28	2.54	1.71	1.79	1.8
site24	CH	Basel	0	0	0	0	0
site25	CH	Berne	19.83	21.7	21.12	24.69	3.7
site26	CH	Geneva	0	0	0	0	0
site30	CH	Zurich	0	0	0	0	0
site34	CZ	Budweis	86.11	130.17	93.35	59.24	146
site37	CZ	Prague	191.27	184.31	183.9	193.36	199
site55	ES	Barcelona	25.12	25.31	26.91	22.28	26.
site56	ES	Castellon	0	0	0	0	0
site59	ES	Santiago	0	0	0	0	0
site90	FR	Paris Seine Centre	0	0	0	0	0
site98	HR	Zagreb	0	0	0	0	0
site101	IT	Milan	8.9	9.62	9.4	8.61	12.
site107	NL	Amsterdam	8.48	4.96	10.82	5.42	4.9
site108	NL	Eindhoven	0	0	0	0	0

site111	NL	Utrecht	2.06	1.2	0.82	2.45	1.58
site112	NO	Oslo	197.16	153.07	118.82	221.87	202
site120	SE	Gothenburg	37.66	43.6	51.4	62.57	61.6
site125	SE	Umea	1.34	1.18	0.97	0.77	0.76

2012: MDMA/ecstasy

Download as CSV (/system/files/attachments/13776/WW-data-MDMA-2012.csv)

MDMA/ecstasy residues in wastewater in selected European cities, 2012

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sun
site13	BE	Antwerp Deurne	26.35	17.38	13.53	14.56	22.4
site14	BE	Antwerp Zuid	66.84	47.82	35.03	46.04	78.6
site17	BE	Brussels	8.54	5.73	5.03	7.76	19.3
site24	CH	Basel	5.51	4.52	3.95	3.46	26.0
site25	CH	Berne	3.96	3.76	3.65	15.53	25.4
site26	CH	Geneva	25.59	22.63	5.18	5.06	4.51
site29	CH	St. Gallen Hofen		7.25	8	7.59	49.1
site30	CH	Zurich	25.99	4.32	4.07	4.3	44.8
site34	CZ	Budweis	8.3	15.82	11	5.18	11.1
site37	CZ	Prague	7.01	7.7	14.78	11.85	10.4
site55	ES	Barcelona	14.64	11.75	10.06	16.47	35.7
site56	ES	Castellon	0	0	0	0	0
site59	ES	Santiago	2.4	1.51	4.03	5.04	5.42
site62	FI	Helsinki	7.65	5.15	6.92	5.84	22.9
site85	FI	Turku	0	0	0	0	0
site98	HR	Zagreb	2.66	2.15	2.35	2.89	9.52
site101	IT	Milan	3.57	4.23	4.21	8.55	14.4
site107	NL	Amsterdam	94.68	50.31	54.52	58.01	122.
site111	NL	Utrecht	138.89	79.22	67.88	96.54	179.
site112	NO	Oslo	10.38	5.9	3.62	10.85	23.0

site120	SE	Gothenburg	0	0	0	0	0
site125	SE	Umea	0	0	0	0	0

Data from 2011 study

2011: cannabis

Download as CSV (/system/files/attachments/13776/WW-data-cannabis-2011.csv)

Cannabis residues in wastewater in selected European cities, 2011

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sun
site14	BE	Antwerp Zuid	0	0	0	0	0
site34	CZ	Budweis	51	45.37	38.5	45	49.7
site55	ES	Barcelona	58.17	136.98	131.27	132.63	85.6
site56	ES	Castellon	139.29	134.24	101.63	99.25	108
site59	ES	Santiago	82.66	138.2	104.03	66.04	45.2
site60	ES	Valencia (3)	10.45	12.38	12	20.44	11.1
site90	FR	Paris Seine Centre	36.68	67.99	51.5	96.85	156
site98	HR	Zagreb	28.57	33.97	25.15	34.21	33.3
site101	IT	Milan	26.28	24.6	25.47	24.64	25.2
site107	NL	Amsterdam	206.06	227.57	199.68	169.88	155
site108	NL	Eindhoven	76.45	90.84	109.75	114	116
site111	NL	Utrecht	115.12	85.75	112.92	111.51	109
site125	SE	Umea	0	0	0	0	0

2011: cocaine

Download as CSV (/system/files/attachments/13776/WW-data-cocaine-2011.csv)

Cocaine residues in wastewater in selected European cities, 2011

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sun

site14	BE	Antwerp Zuid	589.73	610.11	753.98	784.21	919
site17	BE	Brussels	146.31	188.31	188.45	236.64	244
site34	CZ	Budweis	8.12	10.16	10.68	7.93	3.43
site55	ES	Barcelona	249.14	411.28	445.86	552.19	560
site56	ES	Castellon	333.66	429.33	226.85	314.29	565
site59	ES	Santiago	150.26	184	231.87	319.67	266
site90	FR	Paris Seine Centre	167.77	211	179.94	263.28	185
site93	GB	London	375.29	365.49	405.09		532
site98	HR	Zagreb	43.75	49.96	52.86	66.84	61.7
site101	IT	Milan	225.97	238.5	233.33	314.56	258
site107	NL	Amsterdam	612.06	645.43	633.08	653.76	676
site108	NL	Eindhoven	335	358.11	479.38	612	514
site111	NL	Utrecht	346.83	253.67	468.92	430.15	330
site112	NO	Oslo	45.02	42.97	45.8	39.26	69.4
site125	SE	Umea	4.59	0.66	0.51	4.6	4.87

2011: amphetamine

Download as CSV (/system/files/attachments/13776/WW-data-amphetamine-2011.csv)

Amphetamine residues in wastewater in selected European cities, 2011

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sun
site14	BE	Antwerp Zuid	229.63	211.52	318.89	318.79	311
site17	BE	Brussels	22.92	28.77	39.31	57.57	44.6
site34	CZ	Budweis	20.2	27.07	24.6	29.43	23.5
site55	ES	Barcelona	7.4	12.14	13.21	25.29	19.5
site56	ES	Castellon	0	0	0	0	0
site59	ES	Santiago	33.99	35.46	41.2	40.04	30.0
site90	FR	Paris Seine Centre	0	0	0	0	0
site93	GB	London	46.2	43.34	30.89		44.7

site98	HR	Zagreb	11.95	13.67	13.26	16.96	20.6
site101	IT	Milan	11.3	12.42	11.5	15.47	10.9
site107	NL	Amsterdam	162.77	181.64	70.73	100.65	102
site111	NL	Utrecht	75.02	54.04	93.74	100.59	83.2
site112	NO	Oslo	12.06	11.4	16.95	10.49	12.0
site125	SE	Umea	17.14	22.16	13.61	7.22	15.7

2011: methamphetamine

Download as CSV (/system/files/attachments/13776/WW-data-methamphetamine-2011.csv)

Methamphetamine residues in wastewater in selected European cities, 2011

SiteID	country	city	methamphetamineWed2011	methamphetami
site14	BE	Antwerp Zuid	3.79	4.1
site17	BE	Brussels	0	0
site34	CZ	Budweis	170.18	169
site55	ES	Barcelona	6.43	8.12
site56	ES	Castellon	0	0
site59	ES	Santiago	0	0
site90	FR	Paris Seine Centre	0	0
site93	GB	London	7.97	7.22
site98	HR	Zagreb	0	0
site101	IT	Milan	44.46	41.37
site107	NL	Amsterdam	0	0
site108	NL	Eindhoven	0	0
site111	NL	Utrecht	0	0
site112	NO	Oslo	235	212.6
site125	SE	Umea	3.91	4.37

2011: MDMA/ecstasy

MDMA-2011.csv">Download as CSV

MDMA/ecstasy residues in wastewater in selected European cities, 2011

SiteID	country	city	Wednesday	Thursday	Friday	Saturday	Sund
site14	BE	Antwerp Zuid	29.26	26.16	34.21	85.55	94.1
site17	BE	Brussels	3.54	4.46	3.38	6.01	18.6
site34	CZ	Budweis	3.31	1.49	2.78	6.6	3.01
site55	ES	Barcelona	6.4	8.56	8.94	27.35	41.2
site56	ES	Castellon	0	0	0	0	0
site59	ES	Santiago	3.4	3.89	5.94	4.15	12.9
site90	FR	Paris Seine Centre	8.68	10.64	11.46	36.75	6.06
site93	GB	London	16.28	14.27	18.46		79.7
site98	HR	Zagreb	1.91	2.34	2.71	5.32	5.5
site101	IT	Milan	2.54	2.55	6.19	11.54	18.0
site107	NL	Amsterdam	97.81	52.29	43.3	50.71	142.
site108	NL	Eindhoven	82.82	57.68	61	63.33	92.3
site112	NO	Oslo	0	0	0	0	0
site125	SE	Umea	0	0	0	0	0

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